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JOURNAL
OF THE
Academy of Natural Sciences
OF
PHILADELPHIA.

No. 4. AUGUST, 1817. Vol. I.

On a New Genus of the Crustacea, and the Species on which it is established. By Thomas Say. Read July, 8, 1817.

ORDER MACROURI.

Genus CERAPUS*,

Essential Character.—Thumb of the second pair of feet biarticulate; Interior antennæ four jointed, exterior ones five jointed.

Artificial Character.—Antennæ subequal, interior ones 4-jointed, exterior one 5-jointed. Two anterior pairs of feet monodactyle, the second pair with a two jointed thumb.

Natural Character.—Body semicylindrical, somewhat linear, decreasing towards the tail, ten-jointed. Head distinct from the first joint and larger, quadrate, a little elongated into an angle near the base of the interior antennæ, each side, for the reception of the eyes, which are hardly prominent. Antennæ nearly equal, very large, interior ones with the first joint thicker, second and third

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*From κέρας, a horn, and πους, a foot, in allusion to the animal employing its antennæ as feet.

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nearly equal; exterior antennæ five-jointed, the first joint placed in a deep sinus beneath the eye, short, not projecting beyond the margin of the head above, second joint hardly longer than the first, third and fourth equal to the second and third of the interior antennæ. Anterior pair of feet moderate, with a small ovate hand and moveable nail, not closing on the hand, attached to the first segment of the body; second pair with the basal joint attached to the edge of the body (as in Cymothoa, &c.) second joint broad, compressed with an insisure near the base before, third small, medioliform, carpus cylindrical, narrower than the preceding joint; hand very large, compressed, subtriangular, attached to the carpus by the inferior edge of the acute angle, which is a little curved, tip emarginate and armed with a strong, acute spine on the anterior angle, thumb two-jointed, first joint incurved, linear, second acute, closing on the spine of the hand. Third and fourth pairs of feet equal, similar to each other, first joint dilated, equal to that of the preceding feet, remaining joints small, nearly equal to each other, submoniliform; two posterior pairs of feet reflected above the back; tail incurved, furnished each side near the tip with a pedunculated bifid process, and a minute, conic, acute, papilla.

1. *C. tubularis.* Head with a mucronate carina before; eyes oval, black. Hand and first joint of the thumb of the second pair of feet with one or two obtuse teeth within. Body above blackish, with irregular paler spots; antennæ and feet white, joints tipped with blackish; two hind pairs of feet and tail white.

Inhabits a tube. Length about one quarter of an inch.

This curious animal, for which I have constructed a new genus, was found amongst fuci on the sea beach at Egg-Harbour in considerable numbers. In its mode of life it bears some resemblance to the Pagurii, inhabiting a cylindrical tube; but the circumstance of its inhabiting a foreign body is the only point of similarity between them. To the genus Caprella it approximates by the form and disposition of the head with the antennæ; but differs from it in essential particulars, as in the form of the tail, number of joints of the body, and position and form of the feet. With the genera Talitrus, Gammarus, &c. it is related chiefly by the incurved tail and reflected hind feet, but the caudal appendices, as well as many other important parts, are totally dissimilar, these appendices are not rigid and spinose as in Gammarus, but flexible and lateral as in Cymothoa. Its proper situation in the system of Latreille will be with the family Gammarinæ and intermediate between the genera Gammarus and Caprella. But in the excellent modifications of Dr. Leach it will be placed in his family Podoceridæ, next to his recently discovered genus Jassa, to which indeed it might be referred, as far as I am able to judge from the brief description that has been given of that genus, but for the two-jointed thumb, and other minor characters.

This little animal is very active, running with great facility amongst the branches of fucus, sertularia, &c. although encumbered by its tube, and what is extraordinary, making use of its four antennæ only as feet; the proper feet are all included within the tube, with the exception of the two anterior pairs, which are only used to seize its prey and convey it to the mouth. Feeds principally upon the animals of Sertularia?

The tube is always proportioned to the size of the inhabitant, and appears to invest it closely, nevertheless when an impediment is presented, in consequence of which the animal is prevented from proceeding onwards, he turns his body immediately, and apparently without any difficulty within the tube, protrudes his head from the opposite extremity, and thus makes use of either end indifferently as the anterior part.

When swimming about one half of the body is projected from the tube, and is suddenly and repeatedly inflected, so as to proceed forwards by jerks. It very much resembles, at first view, the larvæ of insects of the family of Phryganides, for which it must have been hitherto mistaken.

Not having the tube before me, I can only say from recollection, that it is cylindric, membranaceous, diaphanous, open at each end, and of a colour somewhat reddish; but of its origin I know nothing, a little observation on the spot might however determine this. To suppose it fabricated by the animal, would be supposing an absolute anomaly in the history of the whole race of crabs, and there is no organ belonging to the Cerapus which could be adapted to a function so remarkable. I think it probable the tube will be ascertained, by further and more particular examination, to have been constructed by one of the annelides; indeed it perfectly resembles in every respect a section of the tube of that species of Tubularia which we so commonly find in the cavities of the large Alcyonium of our coast.

A plate of this animal, with the necessary details, will be given in the succeeding number.

the food of which they are fond, and which afford them a safe retreat during the periods of incubation and nutrition. Our specimen was considered a curiosity at Egg-harbour, and was unknown there even by name. I have often been on the coast of New Jersey, in the spring and autumn, and was equally unacquainted with this bird.

The sex of this specimen could not be ascertained, as its intestines had been removed before it was forwarded to Philadelphia, and the sexual parts were obliterated.

An Account of the Crustacea of the United States. By Thomas Say. Read Aug. 5, 1817.

The consequence of the discovery of a new genus in this interesting class of the inhabitants of our coasts, has been the revisal of my manuscript descriptions of the Crustacea, and a determination to publish them without further delay, in waiting for more considerable accessions of species. And although the list included in the following paper is not considerable, it may nevertheless form the commencement of a complete account of our crustaceous animals—a very imperfect one it is true, but it may be considered of some importance, in as much as the errors which may be discovered in it, will, by being corrected by competent naturalists, introduce us to a more perfect knowledge of these curious depurators of the ocean.

ORDER BRACHYURA.

Genus CANCER.

Thorax convergent behind. The second joint of the internal peduncle of the external pedipalpi quadrangular, notched at the apex internally, for the reception of the following joint: all the feet formed for walking.

SPECIES.

1. C. *Panope.* Thorax with about three serrate teeth each side, clypeus porrect, truncate, with a deep fissure, anterior feet glabrous, carpus with a thick spine, hands large, subunequal, fingers black.

Cancer Panope? Rees's Cyclop.

Inhabits oyster beds, &c. common.

Plate 4. *fig*. 3.

Thorax laterally, and on the edge, granulated; three lateral, serrate teeth, and a more or less definite obtuse one, near the posterior canthus of the eye; superior eyelid with two fissures, and a tooth or prominent angle each side, inferior lid ciliate within and with a more prominent tooth near the middle, middle as in the upper lid occupied by a sinus; anterior feet minutely granulated, hands rounded above and beneath, finger perceptibly deflected, and with the thumb strongly toothed within, and black-brown, with impressed striæ; terminal joint of the abdomen not abruptly straitened, rounded at tip; the interior antennæ are comose instead of the larger terminal articulated seta.

Length one inch and one tenth, breadth one inch and a half.

The young of this species are often found on oysters, (*O. virginica*) in our markets, secreting themselves about the hinge of such as are not perfectly divested of the mud in which they had been imbedded. They differ a little in appearance in the different stages of their growth; when very young the cleft in the middle of the clypeus is hardly perceptible, but it gradually deepens with age, the anterior obtuse tooth also does not exist in the young, but is gradually separated by a sinus from the elevated external angle of the eye as the animal increases in size.

2. C. *irroratus*. Thorax with nine crenate teeth on each side; Clypeus three-toothed; hands with four or five elevated lines on the external side.

Cancer undecemdentatus? Latr. Hist. Crust. et Ins. Inhabits the ocean. Common.

Plate 4. *fig* 2.

Thorax whitish, with crowded small red granules, a whitish dorsal mark behind the middle resembling the letter H; on each side, two parallel curved lines of white dots, nine or ten in each, sometimes obsolete in the old shell; a few hardly raised obtuse tubercles on the disk; posterior marginal tooth more acute, but hardly more prominent than the others, with an indentation at its base on the hind edge of the thorax; central tooth of the rostrum depressed rather below the line of the two others; Orbits orbicular, two fissures or impressed lines above and two beneath, a little raised into two teeth on each side of the exterior antennæ and into one tooth at the posterior canthus; Thighs ciliate above, and marked by an impressed band near the tips, both joints of the tibia ciliate beneath, tarsi compressed. acute and deeply striate.

Carpus above spotted like the thorax, with an advanced acute spine at the inner anterior angle. Hands moderate,

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* Mr. Savigny in his ingenious work on the organs of the mouth of Insects and Crustacea, has shown that crabs, &c., have in reality sixteen feet; but that six of them are palpiform and applied to the mouth. I have, however, continued to make use of the old terms, carpus, hand, finger, thumb, &c., until the terminology is settled.

equal, with four or five elevated, granulated lines on the outer side, two of which are continued upon the finger, finger somewhat deflexed and with the thumb brown or black at tip, and furnished with regular crenate teeth; terminal abdominal segment triangular, acute at tip.

Length one inch and a half, breadth two inches and three tenths.

The female differs from the male in some respects so particularly that it would be easy to mistake her for a distinct species; to prevent this confusion it is proper in this place to point out the differences. The thorax of the female in two specimens before me is destitute of the white H mark and also of the curved lines of white dots; but the most striking dissimilarity is in the form of the lateral teeth of the thorax, these are exactly of the same number as in the other sex, but the form is different, each one being divided at tip into several smaller tuberculous teeth; the abdomen is but little dilated, it is also hairy; the fingers are rather shorter and more of a deep black than are those of the male. Whether or not it would be correct to refer this species to C. undecemdentatus of Fab. and Latr. is not to be positively determined from the very concise description of that crab given by the latter author, but certain it is, it approaches nearer to it than any other with which I am acquainted, but differs from it, as far as I can judge from the description, in not having the "thorax rather dilated behind," neither are the "handclaws somewhat hairy."

The exuvia of this species is often found on the sea beach cast up by the waves. I have not seen the crabs in bays or inlets, they appear to delight in deep water, and are eaten by the Blackfish, and Sea-basse, being often found entire in their stomachs.

3. *C. granulatus*. Thorax granulate, with five lateral teeth, clypeus with three very obtuse ones.

Inhabits bays and inlets near the sea.

Body and feet spotted with brown and covered with minute, crowded granules, those of the thorax more conspicuous, distant and tuberculiform; spots of the feet and abdomen impressed and placed in more or less obvious lines. Thorax a little uneven, edge all round and teeth granulated; teeth rather large, serrate, hind one a little smaller, anterior ones forming the canthus of the eye. Orbit subovate, a fissure above, an obtuse tooth beneath the anterior canthus, and a fissure beneath the hind one; Clypeus somewhat advanced, with three obtuse, subequal teeth, middle one smaller; Sides of the thorax beneath, furnished with silky hair; Anterior pair of feet with the second and third joint ciliate before, the latter concave above, not longer than the edge of the thorax, with a very obtuse tooth at tip and impressed transverse line; Carpus acutely spined within, no spine on the opposite edge; Hand convex on the back, an elevated line above on the inner side, fingers striate with impressed lines, about four on the thumb, not falcate at tip.

Length about one inch and a half, greatest breadth at the hind teeth near two inches.

The specimen described was a female, for which I am indebted to Mr. Titian Peale. In the form of the body, number of the lateral teeth, &c., it has a great resemblance to Portunus pictus. I have to regret the loss of this individul before a drawing was made of it.

Neither of the three species of Cancer which we have here described are sought after as food.

Genus PORTUNUS.

Terminal joint of the hind feet formed for swimming. Peduncles of the eyes short, not reaching the anterior angles of the shell. Thorax transverse with five (rarely six) teeth on each side.

SPECIES.

1. *P. pictus.* Thorax with five prominent, acute teeth, each side; Clypeus one-toothed; Carpus two-spined and one on the anterior angle of the hand above; terminal joint of the hind feet rounded at tip.

Inhabits sandy shores of the sea. Common.

Plate 4. *fig.* 4.

Thorax with minute granulæ, white, with very numerous red points; four lateral, equal, acute, spiniform teeth, and a similar equidistant one at the hind angle of the orbit of the eye; Orbit oval, with a strong, advanced tooth on the inferior edge, and a perceptible fissure or impressed line above; second joint of the peduncle of the external pedipalpi deeply emarginate at the inner tip; tooth of the clypeus longer than those of the interior canthus of of the eyes, which are also prominent; Thighs silvered above near the tips, second joint of the tibia with an impressed line each side, tarsi compressed, with two impressed lines behind, and one before, posterior ones oval, rounded at tip; Carpus silvery above and spotted with red, two-spined, the inner spine larger and very acute, external one flattened above; Hands equal, almost linear, above silvery, spotted with red, outer edge prominent, and with the inner one granulate, an acute spine at the inner anterior angle, thumb silvered above, edges prominent, and with the finger somewhat linear, hooked at tip, and furnished with irregular teeth; penultimate joint of the abdomen deeply emarginate at tip, for the reception of the terminal, pentagonal, small one.

Length one inch and a fifth, breadth one inch and two fifths.

The exuvia of this beautiful species is extremely common on the sea beach. It is known to the inhabitants by the name of *Sand Crab*, and is not used for food. It seems to be closely allied to *P. depurator* and *lividus* of the European seas. The clypeus, strictly speaking, is not three-toothed, those which appear to be lateral teeth are in reality the anterior angles of the orbits of the eyes, elevated. This species does not perfectly agree in all its characters with the genus Portunus as defined by Doctor Leach; this very acute naturalist says, that in this genus there are two fissures in the hind margin of the orbits of the eye, whereas in the species here described there is but one; yet there is no doubt but the situation we have here assigned to it is perfectly correct; the fissures may perhaps serve as good characters by which to separate the genus into smaller divisions.

(To be continued.)

We are indebted to the friendship of Mr. C. A. Le-Sueur for the plate of the Cecidomyia destructor (Hessian-fly) with its parasite, which accompanies the present number.

I forgot to mention in its proper place that the parasitic insect, Ceraphon destructor, which is so commonly mistaken for the Cecidomyia, after the business of propagation is performed, throws off its wings as a useless incumbrance, in this respect resembling some species of the genera Formica, Termes, &c., to which also it bears some resemblance in point of form and appearance; this has led many to suppose that the Hessian-fly is in reality no other than a species of pissmire in the apterous state. *T. Say.*

Explanation of the Plate.

Plate 3. Fig. 1. Cecidomyia destructor at rest, natural size.

Fig. 2. Do. with the wings extended, natural size.

Fig. 1. *b.* Do. Female magnified.

Fig. 2. *a.* Do. Male do.

Fig. 3. Antennæ. *a.* Antenna of the male. *b.* Antenna of the female. Both magnified.

Fig. 5. A plant of wheat with the culms cut off near the root; the vaginæ of the leaves of two of them are stripped down to show the situation of the pupa and larvæ just above the root. *a. a.* Larvæ and Pupa, the three central stalks are represented as punctured by the Ceraphron to deposit her eggs in the larva within.

Fig. 6. A section of the culm with two of these insects in the pupa, or, as it is usually termed, flax-seed state, magnified.

Fig. 7. The Ceraphron destructor at rest, natural size.

Fig. 8. The same flying.

Fig. 9. Male do. magnified.

Fig. 10. Female do. do.

Fig. 11. Antennæ. *a.* that of the male, *b.* that of the female, both magnified.

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OF THE

Academy of Natural Sciences

OF

PHILADELPHIA.

No. 5. SEPTEMBER, 1817. Vol. I.

An Account of the Crustacea of the United States. By Thomas Say. Read Aug. 5, 1817.

(Continued.)

Genus LUPA. *Leach.*

Terminal joints of the posterior feet formed for swimming. Anterior feet equal, arms spinous before; Peduncles of the eyes short, thick; Orbit above with two fissures, beneath at the outer angle with one. Fourth segment of the abdomen of the male elongated, narrower than the preceding. Thorax transverse, nine toothed on each side, the posterior tooth largest.

SPECIES.

1. *L. hastata.* Thorax equal, with distant granulæ; clypeus three-toothed; arms three-spined; carpus unarmed.

Inhabits bays, &c. Very numerous.

Granules of the thorax scattered unequally, obsolete behind, arranged in four lines, two dorsal, and one on each side at the elongated tooth; Clypeus with two equal teeth, and a smaller, but equally prominent conic one connected with the labrum, between the interior antennæ; anterior feet with the third joint three-spined before and one spined at the outer tip; carpus with two elevated lines, the outer one sometimes extended into an obtuse spine; hands somewhat linear, with five or six raised, granulate lines, and a strong spine at base, fingers linear, a little hooked at tip, with impressed lines, and furnished with somewhat regular teeth, about four in each, teeth rounded, compressed, each with a supplemental smaller one at the base each side; fourth joint of the three following pairs of feet, with two short spines at the tip above.

The edible crab is known to every one by the name of "Crab." It is brought to our markets in great quantities, from all the bays and inlets of the sea coast, and is a very acceptable food. Feeds on dead animal matter in its various stages of putrescence, and is one of the many depurators of the ocean. In addition to the particulars already stated by naturalists of its manners, I will observe that it often buries itself in the sand so that no part is visible but the eyes and interior antennæ, these last are then in continual motion, the bifid terminal joint acting as forceps to seize and convey to its mouth the small moluscous animals for food. They are so numerous that the sein fishermen often reject them. The shell is cast annually, generally in the spring, and they are then known by the name of soft-shell crab, are very delicate, and in particular request for the table: in this state the crab is incapable of any defence against its enemies; the male usually retires to a secluded situation for security, but the adult female is protected by a male, whose shell is hard, they are then called *double crabs.* It is sometimes infested by a small worm resembling an Ascaris, in considerable numbers; these have occurred to the number of two between each of the lamellæ of the branchia. I have seen them confined to the branchia of the left side only, those of the opposite side were perfectly free in one instance. Worm short, filiform, a little attenuated and flattened before, pale yellowish, extremities rounded, body silvery above and spotted with red.

Genus PINNOTHERES.

Exterior antennæ short, the three basal joints longer, terminal one setaceous, arising from under the interior canthus of the eye; peduncles of the eyes very short, dilated, spherical. Interior antennæ larger, arising from a hemispherical base, and placed beneath the clypeus. External pedi-palpi with the outer division concealed, internal division with the peduncle of one subincurved joint, rounded at tip and incumbent on the mentum, terminal joint bifid, intermediate one subcylindrical, attached behind the external tip of the peduncle. Feet formed for walking.

SPECIES.

1. *P. Ostreum.* Thorax rounded before and on each side, somewhat truncate behind, clypeus a little advanced, entire; hand gibbous above near the base of the thumb.

Inhabits the common oyster (*O. Virginica.*)

Plate 4. *fig.* 5.

Thorax with minute distant hairs, punctured, punctures minute, distant, an impressed, abbreviated, transverse line near the middle; Clypeus sometimes perceptibly emarginate at tip; Sides of the thorax rounded, without a margin or edge; Orbits rounded, eyes composed of minute, red, approximate, punctures; hands clothed with short white hairs, abruptly gibbous above the origin of the thumb; fingers hairy, rectilinear, shorter than the hand, toothed at the base within, and terminated by an abrupt, short, acute hook; penultimate joint of the first pair of feet a little dilated. Abdomen as large as the thorax.

Length seven twentieths of an inch, breadth two fifths of an inch.

A very common inmate of the oyster of our markets, and of more frequent occurrence in that variety called *Fresh Oyster.* Though small, it is excellent food, and those who eat oysters seldom reject it. Where the fresh oyster is opened in considerable numbers, the crabs are often collected and served apart, for the palates of the luxurious. It is a curious fact, that although the female of this species is so very often found occupying the Oyster, the male is absolutely unknown. This is supposed, by those who are not conversant with natural history, to be the young of the common Crab (Lupa hastata.)

2. *P. depressum.* Thorax flat, rounded, somewhat truncate behind, edged on each side by a raised line; clypeus advanced, truncate; penultimate joint of the feet dilated; eyes conspicuous.

Inhabits the common Oyster?

Thorax flat, polished, with a marginal raised line of very short dense hair which is broader behind, straitened over the eyes and almost extinct on the clypeus; eyes proportionably larger and more prominent than in the preceding species; Carpus with a line a little elevated on the upper side within; hands suboval, an elevated, obtuse line on the exterior upper side; fingers short; penultimate joint of all the feet dilated, compressed, with minute crenae on the inner edge; tarsi incurved at tip, very acute; Abdomen gradually attenuated, joints transverse, terminal one much smaller than the preceding, rounded.

Length not quite one tenth of an inch, breadth a little more than one tenth.

This description is taken from a male specimen in my cabinet, procured at Egg Harbour several years ago; having taken no note at the time I cannot state decidedly in what shell it was found. It is possible it may prove to be the male of the preceding species.

Genus OCYPODE. *Latr.*

Peduncles of the eyes elongated, inserted into a central and anterior projection of the thorax, and extending in a groove along the front to the lateral angle; Shell rhomboidal or cordate; feet formed for walking.

SPECIES.

1. *O. arenarius.* Thorax transverse, quadrate, finely granulated, edges minutely crenate. Anterior margin sinuate; hands compressed, serrate; feet very hairy.

Cancer arenarius. Catesby, vol. 2. tab. 35.

Ocypode albicans? Latr. Hist. des Crust. et Ins. from Bosc.

Inhabits sandy beaches of the sea, in holes of considerable depth.

Thorax entirely covered with granulæ, edge with small crenate teeth, which are obsolete on the base and near the clypeus; about one sixth part of the front elongated, rounded at tip, inflected and adpressed to the face, remaining portion of the front sinuated, anterior angles sallient, acute, lower eye-brow with larger crenate teeth, and on the cheeks each side of the mouth the granulæ resemble short obtuse spines, a curved line arises from a fissure in the middle of the lower eye-lid and terminates at the inferior inner angle; feet compressed, very hairy, surface smooth, sometimes granulate in the females; thighs margined above, the posterior ones with a marginal line beneath also, last joint with an impressed longitudinal line each side, tarsi acute, striate with elevated lines; Anterior feet beneath glabrous, on each side dentate, above somewhat rugose; wrist scabrous, with a spine on the inner angle; hands suboval, compressed, scabrous, above dentate, and on the edge beneath serrate, fingers nearly as long as the hand, with elevated lines; last segment of the abdomen and tail in the male longer than broad.

Breadth of thorax one inch and two-fifths.

This species excavates holes for its dwelling of the depth of three or four feet in the sand of the sea beach, just above the influence of the surf, whence it makes occasional sorties, principally at night, in pursuit of food; runs with considerable swiftness when surprised or dug out of its hole, holding up its arms in a menacing attitude.

Thelatter end of October or early in November, according to the state of the weather, they leave their residence near the water, and retire a distance from it, where they may hybernate in security; having found a suitable situation, they form a hole of similar appearance to that which they have just left, and having closed up the entrance, so that it is undistinguishable from the general surface, they retire to the bottom to pass the winter in a state of inactivity.

This species is figured by Catesby in such a manner as to leave no doubt as to its identity with the individual here described. In the West Indies, whence his specimen was obtained, this Ocypode arrives at a size rather more considerable than in this country, but in no other respect, that I know of, does it differ. The species described by Mr. Latreille from Mr. Bosc's work, under the name of *albicans*, seems to agree in some measure with this, but as he does not refer to Catesby's figure, I am not prepared to say it is the same; this uncertainty has induced me to insert the description in this place, notwithstanding the certainty of its having been noticed before.

2. O. *pugilator.* Thorax transverse quadrate, glabrous, a little straitened behind; one of the hands in the male very small, the other very large.

Ocypode pugilator? Latreille, Hist. Crust. et Ins.

Inhabits bay shores and salt marshes.

Thorax, when closely examined, covered with minute granulæ; about one third of the front elongated, deflected and rounded at tip, remaining anterior margin rectilinear, the angles not sallient but acute, and without sinus behind on the lateral edge; lower eye-lids regularly dentate; cheeks scabrous; feet almost naked (there are however a few scattering hairs,) somewhat scabrous or rugose; one of the hands remarkably large, longer than the feet, a little granulate, equal above and beneath, fingers nearly straight, with very small tuberculate teeth, thumb distant from the finger, forming an oval interval, curved near the tip, so as to extend over the tip of the finger, and like it furnished with very small and numerous teeth, both smooth and polished on the inner side; the other hand very small with nearly equal fingers; abdominal segments broader than long; hands of the female small, equal, a little bearded on the inner side of the tip; the fingers of the smaller hand of the male are also bearded at tip.

This is the animal so well known to the inhabitants of the sea coast under the name of "Fiddler," an appellation almost universal, and probably derived from a supposed similitude between the large hand of the male and the fiddle or violin. I have never heard them utter any cry.

The pugilator digs a hole in the earth, where the sand is not too abundant, choosing usually a situation on the margin of a bay, or other salt water, in which the earth possesses some tenacity, that the walls of its cell may be the more permanent, and not liable to cave in upon him. In such situations the Fiddlers are extremely numerous. During the day they seldom venture far from their dwelling, but upon the slightest appearance of danger whole troops of them disappear immediately, taking refuge in their holes, sometimes when the danger is imminent an individual will seek security in a dwelling not his own; in this case the occupant patiently submits to the intrusion.

The large claw is sometimes on the left side and sometimes on the right, indifferently.

The species *vocans* of Linnæus seems to have included several perfectly distinct animals, and great is the confusion in the synonyma of different authors in relation to it. Mr. Latreille has been able to distinguish three distinct species, referred by authors to this one; these he has accordingly separated under the names *vocans*, *maracoani* and *pugilator*, the last of which, judging from the very short description of that author, appears to be the same with the one here described, although he gives, as its habitat, the American ocean. In manuscript I had named it Citharoedicus, but averse from an unnecessary multiplication of names, I have adopted the above, notwithstanding the objection stated. It belongs to the Genus Uca of Dr. Leach.

3. *O. reticulatus*. Thorax quadrate, a little transverse, with oblique, hardly elevated rugæ on each side behind; hands rather large, equal, ovate, punctured, fingers smooth; tibia of the four hind feet, thickly clothed with fine incumbent hair; body laterally reticulated.

Inhabits muddy salt marshes.

Plate 4. *fig*. 6.

Thorax with numerous, minute, irregular punctures, an impressed pyriform line on the middle, which is narrowed and more deeply impressed on the clypeus, behind this is a transversely oval one, from which proceeds two lines to the base of the thorax, a line arises from the interior orbits of the eye and curves to the pyriform one; clypeus truncated, with an abbreviated, longitudinal line each side; a lateral obtuse sinus more or less distinct near the anterior angles of the thorax each side, anterior angles acute; tip of the clypeus and labrum granulated, the granules of the latter much larger; cheeks and sides of the body, with numerous, parallel, longitudinal lines of granules, granules in pairs and surmounted at regular distances by perpendicular, equal hairs, which are inflected and horizontal before their tips, with the most perfect regularity, giving to the whole surface a reticulated appearance; beneath the lateral edge of the thorax are about six short ciliate curves, disposed in a longitudinal series; no elevated lateral line; feet rather short: thighs mucronate above near the tip, with minute aculeæ behind, which are wanting on the posterior ones; tibia clothed with fine, dense, incumbent hairs; tarsi short, acute, striate with six ciliated lines; anterior feet rather large, thick, scabrous with minute abbreviated, moniliform lines; carpus unarmed, hands rounded beneath, with a moniliform edge above, which becomes almost serrate on the thumb; second peduncular joint of the external pedipalpi, with a strong, elevated line on the inner margin.

Inhabits the banks of creeks, &c. in salt marshes, where it digs a hole for a habitation in the manner of the Fiddler, with which it associates by dwelling in the same vicinity.

The small reticulate divisions of the sides of the body, are either perfectly square, rhomboidal, or hexagonal, according to the direction in which they are viewed, they may also resemble right lines by a perpendicular view, which shall bring the inflected portion of the seta parallel over the granulated line.

Fearful of multiplying genera without full and sufficient grounds, I have retained the genus *Ocypode* in the comprehensive sense of Mr. Latreille, in order to place under it the present animal. Doctor Leach has divided Ocypode into several genera, but perhaps the characters are not sufficiently noted, or, which is more probable, the division must be still further extended. With this view all the characters possible ought to be given, in order to enable naturalists to decide without loss of time. A very good character may be drawn from the lateral line; this line, which does not exist in the present species, arises from near the middle of the edge of the thorax, passes obliquely across the side of the body, and terminates at the penultimate hip joints; in the two preceding species, this part is as prominent as the edge of the thorax. A second good character may be derived from the form and proportion of the second peduncular joint of the external pedipalpi, in the two preceding species, and their congeners, this part is formed, as it were, by a prolongation of the lines of the basal joint, of which it is not more than half of the size; but in the present species the form is altogether different, and approaches to that of the same part in Grapsus, and perhaps Gecarcinus of Leach; it is nearly oval, a little emarginate at tip for the insertion of the palpi, and inclined inwards, so as to form an angle with the preceding joint, thereby leaving a considerable interval in the middle of the mouth, in size also it is nearly equal. The very dense brush of hair, which is attached to the inside of the third and fourth pairs of hips, may furnish another character. It is not conspicuous in the species under consideration. In this species also the tibia and tarsi are not spinose as in Grapsus and Gecarcinus, neither are the tarsi dilated so as almost to resemble a third joint of the tibia as in the former. The *reticulatus* in the rigid arrangement of Dr. Leach cannot be referred to the Ocypodes of which the type is *O. cerataphthalma;* neither will it agree with Uca, of which the anterior feet are very unequal, nor with Goneplax, in which they are very much elongated.

By its cubical body and general habit, it certainly approaches the Ocypodes, &c. but by its oral and other artificial characters it seems to claim proximity to the genus Grapsus, notwithstanding its diverse mode of life.

These considerations and comparisons have induced me to indicate the characters partially, of a new genus for this animal, under the name of Sesarma (from σαιρω, the act of gaping,) this genus of course can be adopted or rejected, by those who have an opportunity to examine a more numerous list of species of its neighbouring genera, than I can obtain access to.

Genus SESARMA.

Antennæ short, inserted in a right line between the eyes, under the clypeus; seta of the interior ones shorter than the preceding joint; second joint of the peduncle of the external pedipalpi, oval, as large as the first, and forming an angle with it on the inner edge; palpi attached to the outer tip, first joint compressed, rather longest, second and third nearly equal, not reaching the base of the second joint of the peduncle; body somewhat cubical; arms equal; no oblique lateral line, or prominent dense hair between the third and fourth hips; tarsi simple, conic, acute.

Genus LIBINIA. *Leach.*

MAJA. *Fabr. and Latr.*

Thorax rounded, spinose, with dense hair; *rostrum* entire; *eyes* hardly thicker than their peduncles: *orbit* with a fissure above and one beneath *exterior antennæ* as long as the rostrum, the first joint longer than the second, the third slender: *external double pedipalpi* with the second joint of their internal peduncle, abruptly and deeply emarginate, for the insertion of the palpi, and with its interior side, near the base, emarginate for the reception of the prolongation of the first joint: *anterior feet* not much thicker than the others, which are similar to each other, and not very long.

SPECIES.

1. *L. canaliculata.* Thorax densely hairy, with about seven lateral spines, and a few usually shorter ones on the back; Rostrum emarginate at tip, canaliculate between the eyes; anterior feet unarmed, granulated, hands elongated; fingers white at tip.

Inhabits bays and inlets of the coast.

Plate 4. *fig.* 1.

Rostrum beneath glabrous and white, a deep notch at tip; Orbits orbicular, with a spine before, and three smaller ones beneath, a fissure above near the posterior canthus, and one opposite beneath; Labrum deeply impressed in the middle; anterior angles of the mouth prominent, forming an irregular tubercle, behind this tubercle, and the posterior spine beneath the eyes, is a profound puncture like an aperture, from which arises a deep groove, that curves before the anterior lateral spines and joins an impressed, abbreviated, transverse line which is on the middle of the thorax, the above line is confluent before its termination in the transverse line with a less deeply impressed one which meets the fissure, then curves over the orbit of the eye, and terminates at the base of the rostrum; two of the anterior lateral spines of the thorax are placed lower than the others, appearing to be interrupted continuations of the margin or edge of the thorax; a series of four or five tubercles placed longitudinally on the back behind the impressed line of the middle, and two often obsolete ones before it; several other spines more or less conspicuous, but of which about four are always more prominent, are placed on the back between the dorsal and lateral rows. Feet long, covered with short dense hair, second and third pairs rather longest; tarsi long, conic, incurved, without striæ, furnished at tip with a yellowish glabrous nail, which is perceptibly a little elevated at its origin above the common surface of the tarsus of which it is a little more than one fourth of the length, grooved with a line each side and one beneath to a level with the general surface of the tarsus; anterior feet granulated, wrists unarmed, or with an obsolete tubercle on the inner angle, hands subcylindrical, a little compressed, linear, hardly smaller near the base, condyles of the base prominent; fingers about half as long as the palm, with regular obtuse teeth, and an impressed lateral line on each.

Length about two inches and a half, breadth more than two inches.

Known on many parts of the coast of the United States by the name of *Spider Crab*, *Sea Spider*, &c. is very commonly brought ashore by the nets of the fishermen, but is not used as food. Walks with a wary, measured step, as if fearful of making a noise. Comes near to the description of *M. hircus, Gmel.* but differs in not having the "arms muricated;" to *L. emarginata* of the Zool. Miscel. vol. 2. tab. 108, it is closely related, but the arms are much longer.

Genus LISSA. *Leach.*

MAJA *of Fabr. andLatr.*

Thorax tuberose, with a fissile rostrum: *rostrum* with the laciniæ meeting; *eyes* rather thicker than their peduncles; *orbit* with one fissure below and another behind. *External antennæ* with the basal joint thicker and longer than the next. *External double pedi-palpi* with the second joint of their internal peduncle, half as large as the first, and truncate; emarginate. Anterior feet hardly thicker than the others (of the male, as long as the body: of the female, shorter than the body;), which are similar to each other and of moderate length; *tarsi* simple.

1. *L. fssirostra.* Rostrum depressed, fissile, tapering to the tip; thorax verrucose; terminal joint of the abdomen transversly eliptical.

Inhabits the coast of Long Island.

Thorax destitute of spines, unequal, a little verrucose, gradually tapering from behind to the orbits, sides rather abruptly deflected not decurved, impressed above the insertion of the anterior feet, edge of the thorax verrucose, edge of the shell uninterrupted; orbits of the eyes round and equal before, without any spine or tooth in front, posterior canthus with a large, triangular, prominent, depressed tooth, distinguished from the orbit by a profound fissure above and sinus beneath: rostrum much depressed, broad at base, diminishing by a line somewhat curved, to an obtuse tip, and cleft to the base; body beneath impressed between the anterior feet; anterior feet slightly verrucose, carpus without any spine, hands equal, punctured, linear, not elongated fingers nearly as long as the hand, punctured above, with an impressed punctured line each side, and white tip, may teeth within; terminal joint of the abdomen transversely eliptical.

Length one inch and three fourths, breadth one inch and one fifth.

This curious, and, as I believe, new species, was found by Mr. C. A. Le Sueur, on the coast of Long Island, and kindly communicated by him to the author. It is a male. Upon the body, rostrum, and feet are a number of hooked, short, stout, yellowish hairs, arising from pores, and curving in various directions, but generally backwards: they are not unlike in appearance to a young vegetable production: these arrest and entangle the loose portions of fucus, or other marine plants, amongst which these animals are found, so as to conceal them from their prey, that they may the more readily surprise it; so completely are they sometimes covered as to appear like a moving mass of various kinds of marine plants, no portion whatever of the animal being visible: this habit is not peculiar to the individual here described, but is most probably common to the species of this and the cognate genera, such as the genus Pisa. Mr. Le Sueur informs me, that he has seen Crustacea in New Holland, with the same habit; the fucus, in some instances, was so much entangled with the hooks, feet, &c., as to be with difficulty removed.

(To be continued.)

JOURNAL

OF THE

Academy of Natural Sciences

OF

PHILADELPHIA.

No. 6. OCTOBER, 1817. Vol. I.

An Account of the Crustacea of the United States. By Thomas Say. Read October 7, 1817.

(Continued.)

Since the preceding part of this paper was put to press, Captain James Hamilton presented to the Academy several crustaceous animals collected by himself in the Gulf Stream; amongst these were some specimens of Lupa pelagica, of which I have inserted a description in order to exhibit the difference between it and the L. hastata which it resembles considerably.

Lupa *pelagica. Clypeus* four-toothed; third joint of the anterior feet four-spined; *carpus* two-spined; *hands* ciliated on the interior upper edge.

Inhabits the Gulf-Stream.

Portunus pelagicus. Fabr. and Latr.

Thorax variegated, with minute granulæ; seven of the lateral teeth equal, equidistant, one at the posterior canthus of the eye larger, posterior tooth much larger, spiniform; *clypeus* four-toothed, and the anterior canthus of the eye elevated, the two middle teeth rather smaller, third joint of the anterior feet four-spined on the anterior edge, posterior spine smallest, and nearer to the next; *carpus* two-spined; *hand* with six or seven elevated lines, the upper one terminating in a spine at the base of the thumb, a short, thick spine at the base of the hand and the anterior angle of the carpus; *fingers* hooked at tip, with impressed lines, each armed within by about four teeth, which are furnished with lateral, accessory, smaller ones; remaining feet annulate with dusky. Length of the specimen three fourths of an inch.

From this description of the *pelagica*, compared with that of the *hastata*, it appears, that the principal difference consists in the number of teeth of the clypeus, of the number of spines on the third joint of the anterior feet and carpus, and the elevated thoracic lines; the habitat also indicates a difference, the former being pelagic, and the latter littoral; the colour of the *hastata* is olive-green on the thorax and feet above, beneath white, anterior feet within bright blue, fingers of the male tipped with purple, of the female red, with purple tips; condyles and spines of all the feet more or less red, remaining feet bluish green on the sides.

The pelagica is generally found amongst floating fucus, &c. it is subject to the attack of a parasitic worm, which may be seen through the shell, resembling a small, oval, yellowish spot; these are frequent on various parts of the animal, and may readily be mistaken for maculæ on the shell.

Genus GRAPSUS.

Thorax subquadrate, depressed; *eyes* not larger than the peduncle, which is short and placed at the anterior angles; *abdomen*, in each sex, seven-jointed; *tarsi* dilated, and, with the second joint of the tibia, armed with moveable spines; *hands* equal.

SPECIES.

G. *cinereus.* *Thorax* rugose, with a sinus behind the anterior angle; *clypeus* entire; third joint of the first pair of feet serrate within, and dentate at the tip; *carpus* one-spined; *hands* granulate beneath.

Found in the Gulf-Stream, common.

Grapsus cinereus? Latr. hist. nat. Crust. et Ins. from Bosc.

Cancellus marinus minimus quadratus, Sloane's Jam. vol. 2. tab. 245, fig. 1.

Thorax cinereous, varied with brown, anterior angles acute, with a sinus behind them on the edge, between the eyes are two impressed, abbreviated lines; *clypeus* entire, hardly undulated at tip; third joint of the anterior feet serrate on the inner edge, at the tip four-toothed; *carpus* with an obtuse tooth within; *hands* rather large, granulate beneath; *fingers* dentate within, teeth conspicuous: all the remaining feet, except the last, dentate at the hind tip of the third joint, that of the second pair with a much larger tooth; all rugose above, and, with the exception also of the posterior pair, armed with two moveable, short spines, at the tip of the third joint, which are separated by an impressed line, which is obsolete on the last pair; *eyes* sanguineous. Length two fifths of an inch.

Taken by captain Hamilton in the Gulf-Stream, and by him presented to the Academy. Sloane, in his history of Jamaica, calls it *Cancellus marinus minimus quadratus*, and observes that it is found on *Sargaso* and other sea plants. We also learn that Columbus, in his celebrated voyage which discovered the West Indies to the civilized world, concluded that he was approaching land, in consequence of finding this animal alive on some floating marine plants. To a specimen under examination a Spirorbis is attached.

Genus PLAGUSIA. *Latr.*

Thorax a little narrowed before; *anterior feet* short; *mouth* nearly closed; *Intermediate antennæ* reflected into two profound longitudinal fissures of the front, which divide the clypeus above.

SPECIES.

P. *depressus. Thorax* leprous, three-toothed on each side; *carpus* with an impressed line above, and prominent, emarginate, angle within.

Inhabits Gulf-Stream.

Grapsus depressus—Latr. Gen. Crust. et Ins.

Cancer depressus of Authors.

Cabinet of the Academy.

Thorax with numerous distant punctures, and exhibiting the appearance of being covered with scales, each of which is bounded before by a line of impressed points, furnishing hairs; *dorsal foraminæ** rather large, oval, transverse, open; *mouth* closed; recipient grooves of the interior antennæ, terminating nearly in a line with the hind margin of the orbits, separating the clypeus into three parts, of which the intermediate division is largest, emarginate at tip, with an elevated margin, longitudinal impressed line on the middle, and two small tubercles above; lateral divisions less than half as large as the preceding, margin suddenly raised behind the exterior antennæ; *exterior antennæ* with the first joint dilated before near the tip; three serrate teeth each side of the thorax, hind one smallest and placed about the middle, second and third equidistant and proportionally larger, the posterior canthus of the eye elevated into a tooth, with a small tubercle within its base; *coxæ* with two elevated, somewhat comose, scales, of which the anterior one is acute, obsolete on the four anterior feet, and the posterior one obtuse; *carpus* with a depressed spine within, which is emarginate at tip, above with distant, small tubercles, and a double, darker, impressed, submarginal line above, interrupted behind; *hands* granulate, above with small tubercles, and two impressed lines; *fingers* deflected, with obtuse teeth, tip flattened and brown within; remaining feet with two ciliate lines, second joint of the tibia with three; *tarsi* with but one ciliate line, and a double line of moveable spines beneath; tip of the preceding joint about five-spined beneath; spine, near the tip of the thighs, large; colour variegated, tibia darker, spotted; beneath white immaculate.

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* Not knowing what term has been made use of by Naturalists to express these parts, I have applied this for the present; they consist of two small apertures situate near each other, transversely, about the middle of the thorax, just before the abbreviated transverse line; they might furnish characters, drawn from their form and relative position; they are sometimes parallel, sometimes oblique, round, oval, &c.

The very peculiar situation of the intermediate antennæ, in longitudinal recipient grooves, together with the closed mouth, &c., certainly justifies the separation of this, and its neighbouring species, from the genus to which it has hitherto been referred. I have here described it, that it may be compared with its analogue of the Mediterranean, which is most probably distinct.

Taken in the Gulf-Stream, and presented by Captain Bartling.

(To be continued.)

A new genus of Fishes, of the order Abdominales, proposed under the name of Catostomus; and the characters of this genus, with those of its species, indicated. By C. A. Le Sueur. Read September 16, 1817.

(Concluded.)

7. C. *longirostrum*. *Dorsal fin* deeper than broad, quadrangular; the extremity of the *anal fin* does not reach the base of the *caudal fin*; *head* horizontal, terminated in a long snout

Body subcylindric, strait, delicate; *head* flat; *eyes* large, *irides* yellowish white; aperture of the mouth greatly arcuated, and large; *scales* very small and roundish; colour of the *body* above reddish, paler on the *sides; abdomen* white, with a bluish tint; the *lateral line* is curved above the pectoral fin. Length of individual described five inches.

P. 16.—D. 12.—V. 9.—A. 7.—C. 18 rays.

This fish I discovered in the state of Vermont; I have not seen it in any other state.

8. C. *nigricans*. *Head* large, quadrangular; *anal fin* strait, its extremity reaching the base of the *caudal fin; eyes* oblong; the *lateral line* runs in a straight course from the branchial opening, below the range of the eye, to the tail.

Body subquadrangular near the head; *tail* strait, short; *caudal fin* forked, with pointed lobes; *dorsal fin* quadrangular, and small; *scales* roundish; colour of the *back* blackish, *sides* and *abdomen* reddish yellow, with dusky blotches; *pectoral*, *abdominal*, and *anal fins* reddish; *caudal fin*

An Account of the Crustacea of the United States. By Thomas Say. Read November 4, 1817.

(Continued.)

The two following undescribed animals possess characters so distinct from any genus hitherto established, that I have thought proper to connect them under a new genus. By the conformation of their organs of locomotion, they will serve to approximate still more closely the orders *Brachyura* and *Macroura*, than has been done by the genus *Porcellana*. To this genus I have applied the name of MONOLEPIS,† from the Greek words signifying *one* and *scale*, in allusion to the conformation of the tail. I shall here lay down its characters, at length, distinguishing them into essential, natural, and artificial, and finally note the affinities of the genus.

Order MACROURA.

Head intimately united with the thorax; *feet* ten; *abdomen* beneath furnished with five pairs of natatory feet; *tail* with lateral foliaceous lamellæ.

Genus MONOLEPIS.*

Essential Character.

Hind-feet very small, folded on the posterior angle of the thorax; *caudal lamellæ* simple on each side.

Artificial Character.

Thorax oblong, narrowed before, equal, emarginate over the insertion of the abdomen; *eyes* very large, remote, lateral; *external pedipalpi* incurved, joints subequal, the terminal one abruptly straitened, internal peduncle with the radical joint somewhat dilated on the inner edge, second joint half as large as the preceding, suboval, entire, rounded at tip; *anterior feet* didactyle; *second*, *third*, and *fourth* pairs simple; *fifth* pair much smaller and generally terminated by setæ; *abdomen* not longer than the thorax; *tail* furnished with a single lamellæ on each side.

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† From μονος, one, and λεπις, a scale, in allusion to the caudal lamellæ.

Natural Character.

THORAX convex, equal, longitudinally oblong, gradually a little narrowed before, so as to pass between the eyes, terminating before in a short rostrum, posterior margin of greatest breadth, emarginate over the insertion of the abdomen, posterior lateral angles, with an abbreviated, slightly impressed groove above, for the reception of the posterior feet, sides of the body abruptly deflected, vertical, slightly grooved to receive the feet; *eyes* remarkably large, rather thicker than their peduncles which are short, inserted on each side of the anterior part of the thorax, and destitute of prominent orbits; *antennæ* four, placed between the eyes, *external ones* eleven-jointed, inserted between the anterior angles of the mouth and the base of the peduncles of the eyes, folded upon themselves at the third joint when at rest, *first* and *second joints* nearly equal, the former cylindric, the latter a little dilated beneath, with a few hairs, *third* rounded half as large as the preceding; *fourth* and *fifth* very short, subequal, *eighth* as long as the two preceding ones conjunctly, terminated by two setæ which extend to the apex of the antenna, *terminal* joint minute, tipped with a seta; *interior antennæ* thick, bifid at tip, folded and concealed on each side of the rostrum, and attached to a large, rounded, conspicuous peduncle; *body* beneath (*pectus*) with an abrupt, profound fossula for the repose of the abdomen; *feet* moderate, anterior ones didactyle, second, third, and fourth pairs equal, simple, posterior pair very small, folded on the lateral angles of the thorax, and terminated by elongated setæ.

ABDOMEN semicylindric, not longer than the thorax, of six segments, first segment very short, concealed by the thorax, second, third, fourth, and fifth equal, consimilar, transverse, convex, with acute posterior lateral angles, sixth segment very short, depressed; *natatory feet* large, prominent, internal division of the bifid tip, very small; *tail* as broad at base as the terminal segment of the abdomen, rounded at tip, simple, concealing the lateral foliaceous appendages; *lateral lamellæ* composed each of a single, small, membranaceous, suboval piece, ciliated with long hair, and supported by a short peduncle.

SPECIES.

1. M. *inermis.** *Tarsi* simple; *hind feet* very small, terminated by three setæ; a large truncate tubercle behind each eye; *rostrum* deflected.

Inhabits the eastern shore of Maryland.

Cabinet of the Academy.

Thorax olivaceous-green, with minute darker spots, an impressed circle between the posterior recipient grooves, two small, geminate, deeply impressed punctures, on the middle of the thorax, before which on each side is an oblique, irregular, impressed line; *clypeus* unequal, extended into a short rostrum, which is deflected, adpressed to the face, margined, and furnished with a tooth on each side near the eyes; a large truncate tubercle behind each eye, upon the lower-edge of the body, as long as the peduncle of the eye; *anterior feet* rather small, shorter than the others, hand gibbous above and furnished with a tubercle at the base within; *tarsi* simple as long as the preceding joint, those of the posterior feet furnished with three, elongated setæ at the extremity; *pectoral groove* with the margin elevated, interrupted, unequal.

Length of the thorax one fourth of an inch.

Of this interesting animal I found several specimens on the eastern shore of Maryland, which had been cast on the beach by the refluent tide. They appeared desirous to protect themselves from the dashing of the surf, and the influence of the sun, by burrowing in the sand, in order to wait the return of the tide; but their efforts had no further effect on the compact sand, than to raise a small portion of the surface, which, by the action of the waves was spread over them so as to be distinguishable from the general surface by a small elevation.

2. M. *spinitarsus*. *Tarsi* spinose beneath; tubercle behind the eyes obsolete; *hind feet* terminated by three setæ; *rostrum* deflected.

Inhabits South Carolina.

Cabinet of the Academy.

Clypeus rather prominent between the eyes; *rostrum* deflected, and adpressed to the face; tubercle of the side of the body obsolete; *tarsi* armed beneath with about seven, rigid, acute spines, of which the fifth one is largest, and the sixth one smallest, tip incurved, acute; *pectoral groove* with the margin simple, equal; *hind feet* smallest, terminal setæ longer than the tarsus, and inserted near the tip.

Length of the thorax rather more than $\frac{1}{4}$ of an inch.

This description is drawn from two specimens in the possession of the academy which were found about thirty years ago, on the coast of South Carolina; they had been preserved in spirits, but were lately taken out, to be more conveniently arranged in the cabinet, by exposure to the air and the evaporation of the liquid, they had become considerably contracted, but the striking character of the spinous tarsi, even if the other traits were deceptive, from desiccation, is very sufficient to distinguish it from the preceding species.

The characters of the remarkable animals of which I have here thought proper to construct a new genus, widely differ in essential particulars, from those of all other genera, as defined by naturalists. From a transient view, or slight examination, we would be disposed to refer this genus to the first order of Brachyura, in consequence of the great similarity of habit, which its species bear to that of the individuals of that order. But however closely it may be allied to the Brachyuræ in point of external figure, it is very certain that the character, drawn from the conformation of the caudal lamellæ, is of itself sufficient to exclude it absolutely from that natural group of the Crustacea, in which the tail is invariably simple, or destitute of lateral appendices of any kind.

The precise situation it ought to occupy in the order to which I have assigned it, may perhaps be, with more difficulty, determined. This difficulty does not arise from any proximity, which *Monolepis* can claim, with any of the existing genera, but, in consequence of its remoteness from either of them. There is no genus of the genuine Macroura which is furnished with a less number than two foliaceous appendices on each side of the tail, and but one (Porcellana) that has the abdomen inflected into a groove beneath the body. The resemblance of this last genus to the Brachyura is so imposing, that it is but recently it has been referred to its true place in the system, yet it is worthy of remark that the lateral processes are very conspicuous, crustaceous, and never withdrawn under the middle division. In *Monolepis*, on the contrary, the lamellæ of the tail are minute membranaceous, hyaline, and entirely concealed beneath the middle division, to which they are so closely applied that the unassisted eye would not detect their presence.

These differential characteristics, by which the genus under consideration is distinguished, combined with the form of the antennæ, which it must be confessed is very closely allied to that of the Brachyura, seem to indicate its true situation in the system. It would indeed appear to supply an intermediate shade, a more closely connecting link in the gradation, by which the two orders to which I have referred, are approximated. Hence in an arrangement perfectly natural, it would be the first of the order, but in the artificial system it will precede the genus Porcellana, forming of itself a division of the Macroura.

Genus HIPPA.

Hands simple, compressed and oval; the tarsus of the second and third pairs of feet lunated, of the fourth triangular. *Eyes* supported upon a filiform peduncle.

SPECIES.

1. H. *talpoida.** *Body* convex, oval; four anterior segments of the abdomen not inflected and having the natatory appendices of the tail, reflected on their sides; *tail* elongated, more than half as long as the body, sublanceolate; *clypeus* with two sinuses forming three teeth; *eyes* minute.

Inhabits the coast of the United States; common.

Cabinet of the Academy.

Thorax imbricately rugose before, rugæ interrupted, undulated on their edges; an impressed, abreviated, transverse line, near the anterior teeth, and a curvelinear one before the middle; deflected margin dilated and ciliate behind the middle, and subserrate before the middle: *external antennæ* as long as the thorax, with the second joint of the pedicel largest, of the colour of the thorax, and two spined at tip: at the base before, of the anterior spine, a deep fissure, forming almost a third tooth; third joint convex above, with a fissure near the exterior tip; fourth joint cylindrical, attenuated at base to receive an elongation of the preceding one; *eyes* very small, pedicels filiform, prominent; *feet* and dilated basal joint of the external pedipalpi ciliated; *anterior feet* with the third joint dilated, and traversed by impressed, interrupted lines of ciliæ; fourth joint mucronate at the exterior tip: fifth triangular, margined within with reflected ciliæ; *hand* margined on the outside; *tail* and last segment of the body reflected under the thorax, nearly reaching the base of the palpi, attenuated, sublanceolate, margined, with reflected ciliæ above, and inflected ones on the edge, with two short impressed lines at base.

Length from the clypeus to tip of tail two-inches, greatest breadth near three-fifths of an inch.

Known generally on the coast by the name of *Sand-bug*, and may be found burrowed in the sand of the beach, at the recess of the tide; its exuviæ is frequent on the line formed by the extreme wave. This species certainly approaches very closely to the *H. emerita* of authors, but Mr. Latreille observes of that animal, that the atennæ are half as long as the thorax; this character, if constant, and not a sexual difference, is very sufficient to distinguish that from our specimen, in which the antennæ are equally long with the thorax. In other respects this Hippa agrees very well with the excellent detailed description of the H. emerita, by Mr. Latreille, in the Hist. Nat. Crust. et Ins. It may not be superflous to observe, however, that all the descriptions I have seen of that species, with the exception of the detailed one above-mentioned, represent the last segment of the tail as oval; and although under the generic head Mr. Latreille's words are, "son dernier segment est alongé, triangulaire," yet under the descriptions of species, we have "Caudæ ultimo segmento ovato."

Genus PAGURUS.

Interior antennæ short and bifid at tip; exterior ones setaceous and longer; *body* oblong, *thorax* crustaceous; *abdomen* vesicular, naked, soft and furnished at tip with hooks or holders.

SPECIES.

1. P. *pollicaris.** *Thorax,* with the first segment, depressed, rounded and broader before; *right hand* larger, granulate, almost tuberculate, subspinous above on the wrist; *thumb* above elevated into a prominent angle, *hand* and *finger* crested and denticulated beneath.

Inhabits the coast of the United States.

Cabinet of the Academy.

Anterior segment of the thorax subcordate, truncate behind; posterior segment gradually dilated to the base, where it is emarginate for the reception of the abdomen; small scales at the base above of the pedicels of the eyes small, simple, somewhat concave on the disk, and terminating in a rather obtuse point; *hands* unequal, the right one larger, covered with large and conspicuous granulæ, beneath crested, and dentated to the tip of the finger; *thumb* above projected almost into a right angle; *wrist* with scattered but larger tubercles than those of the hand, subspinous above; thumb of the smaller claw not angulated; *thighs* of the second and third pairs of feet, glabrous, above rugose, two following joints glabrous, above spinous, somewhat hairy; *tarsi* mucronate, nearly equal to the two preceding articulations conjointly, ciliate with hair, compressed and strongly marked by an impressed line on each; appendice to the pedicel of the exterior antennæ as long as the eyes.

Length of the thorax one inch and one fourth.

A large species; it is often cast ashore during the prevalence of heavy north-east winds, otherwise it is not often found. Inhabits our largest species of shells, such as Natica rugosa, *Pyrula caniculata*, *Pyruly* (*Fulgur*, De Monfort) *eliceans*, &c.

2. P. *longicarpus*.* *Right hand* larger and longer than the left: *wrist* and *hand* rather long, linear and granulate; *fingers* short, white, equal.

Inhabits bay shores.

Cabinet of the Academy.

First segment of the thorax rounded, narrowed behind, and truncate at tip; second segment gradually dilating behind, emarginate at base for the reception of the abdomen; small scales at the base above of the pedicels of the eyes simple, concave on the disk, and terminating in a rather obtuse point; *anterior feet* somewhat elongated;

wrist linear, beneath ventricose, as long as the hand, scabrous, with a light groove above, formed by two lines of granules; *hand* linear, granulate, with a moniliform edge beneath, and raised line on the exterior side; *second* and *third pairs of feet* elongated, glabrous, with a few hairs, two penultimate joints punctured, and above serrate, *tarsi* scabrous, cylindrical, incurved, as long as the two preceding joints conjunctly; feet annulate.

Length of the thorax three tenths of an inch.

Very common in our estuaries are generally seen near the edge of the water, running actively about seeking food, or a more commodious or elegant shell, than that with which they are already furnished; they are very quarrelsome and approach each other with great caution. When two of them unexpectedly meet, they immediately and rapidly recede from each other, to a safe distance, in order to consider their respective strength: a combat sometimes ensues, which consists of a variety of movements, the object of which is to drag the adversary out of his dwelling. I have seen a large and powerful individual, whose shell was old and broken, attack one of inferior size, with the obvious intention of plundering him of a shell superior to his own.

They take possession of a Nassa and a Turbo, which are very numerous on our coast; but they may be found in almost every different univalve, regardless of the species; they take possession of any one, that is of a commodious size, but never, as far as I could observe, do they destroy, or offer violence to, the original inhabitant or fabricator of the shell. When recent, the feet are annulated with reddish-brown and whitish.

Genus ASTACUS.

Antennæ inserted in nearly the same horizontal line; *six anterior feet* didactyle; the anterior pair largest: middle division of the caudal lamellæ broader at base; external division biparted.

SPECIES.

1. A. *marinus*. *Rostrum* two or three-spined; each side, a smaller simple one each side of the base, one more distant on the thorax, one usually beneath near the tip; *carpus* above five-spined; *hand* six or nine-spined on the inner edge.

Astacus marinus americanus.—Seba tom. 3. tab. 17. fig. 3.

Inhabits the rocky parts of the coast.

Cabinet of the Academy.

Body with numerous, small, unequal, excavated dots; *thorax* with a dorsal, linear, cicatrice, drawn from near the tip of the rostrum to the base of the abdomen, the last *joint* of the *abdomen* with two remote fascicles of hairs at tip, lateral angle duplicate beneath; *tail*, middle division simple, one-spined each side near the tip, a fascicle of hair near the base above, inner latteral lamella one-spined at the external angle, external one with rather acute spines at the junction of the accessory plate, outer margin rugose; colour, when recent, olivaceous-black, with darker spots, and varied with yellowish bands, beneath and tips of the spines orange-red. Caudal cilia fulvous.

Length

Seba appears to have been the only naturalist who has considered this species as distinct from the very proximate European one. Under the trivial name here adopted he has figured it in his large work. There is no doubt but they are exceedingly similar, and it is probable that at the first view no one would suppose them distinct; but if we may rely on the laconic descriptions which have been given of the *gammarus,* there are certain traits of difference, sufficient to authorize a separation of the species. The *gammarus* is said to have a double tooth or spine each side of the base of the rostrum, the rostrum itself has four or more teeth each side, the bands have four, five, or six spines on the inner edge; in our species the teeth at the base of the rostrum, are small and simple, the rostrum is two or three toothed each side, and the inner edge of the bands six to nine spined.

The Linnæan name *gammarus* was rejected by Fabricius, and *marinus* was substituted in its stead. Notwithstanding this authority, Dr. Leach has, and, I think with great propriety, restored the name applied by Linné, inasmuch as it was given and published prior to that of the Entomologist of Kiel, and this reason, if the word be anywise admissible, according to the rules of the science, is I should conceive, ample of itself. The term marinus, as applied to the European species, being thus rejected, I have adopted it agreeably to the intention of Seba, for the one here described.

This is the *Lobster* of our markets; it is brought in considerable numbers to Philadelphia, in the fish waggons, from Long-branch, part of the coast of New-Jersey, in excellent preservation, and generally alive; they are much esteemed as food, and are sold at 18 cents *per. lb.* They are taken pretty much in the same manner as at the fisheries on the coast of Great Britain, by means of pots or traps, made of slats or osiers, formed somewhat in the manner of a mouse-trap, baited with garbage, &c. attached to a cord and buoy, and sunk by means of a weight.

2. A. *Bartonii.* *Rostrum* mucronate, concave; *thorax* unarmed; *hand* short, destitute of spines; fingers moderate.

A. *Bartonii,* Latr. Gen. Crust. et Ins. v. 6, p. 240, from Bosc's Hist. des Crust.

Inhabits the small streams of fresh water of the United States.

Cabinet of the Academy.

Body and extremities with scattered, very visible punctures, more conspicuous on the hands and fingers; *rostrum* rather short, attaining the tip of the second joint of the peduncle of the inner antenna, suddenly attenuated into an acute termination, without any appearance of lateral spines; spines behind the eyes obsolete, no vestige of spines on the thorax; *anterior feet*, third joint with short spines beneath, above unarmed; *carpus* armed with a strong spine within, near the middle, behind which, near the base, is usually a smaller one, on the disk above is an abbreviated deeply indented groove; *hands* short, with large punctures, distance from the inner hind angle to the thumb joint, hardly equal to one half the length of the thumb, beneath rounded or without an edge; *fingers* with large punctures, *caudal lamellæ* ciliated, first segment of the middle one two spined each side at tip.

Length from the tip of the rostrum to that of the tail, two inches.

This species is very common in rivulets and small streams of fresh water, under stones, &c. it is familiarly known by the name of *Craw-fish* or *Fresh-water lobster;* with many it is esteemed as a delicious food, though not much sought after, but in some parts of the country, children eat them alive, or only their claws. It was first described as distinct from the *fluviatilis* by Mr. Bosc, who named it in honour of the late professor B. S. Barton.

3. A. *affinis*.* *Rostrum* mucronate, subcanaliculate, two-spined; a spine behind each eye, and a larger geminate one, on each side of the thorax; *hand* and *thumb* on the inner edge scabrous.

Inhabits the river Delaware.

Cabinet of the Academy.

Body and extremities with scattered distinct punctures, which are not conspicuously larger on the hands, all furnishing hairs, from one to four in each; *thorax* with a double, prominent, acute spine each side, behind the transverse arcuated band, which is deeply impressed, and terminated on the anterior lateral edge, at an acute spine; a spine on the peduncle of the base of the scale, and a moveable one at the base of the second joint of the peduncle of the exterior antenna; interior antenna with a prominent spine on the first joint of the peduncle beneath; a group of four or five spines between the base of the exterior attenna and the double spine; *rostrum* acutely spinose each side near the tip, tip attenuated into an acute spine, which rather surpasses the tip of the third joint of the peduncles of the interior antennæ, abbreviated carina each side of the base, elevated, and terminated behind the eye in a spine; *anterior feet*, third joint with a double series of spines beneath, two above placed obliquely, two smaller ones at tip, and one behind the outer condyle; *carpus* four-spined, of which the largest is situate on the inner middle, one behind each condyle, and one beneath; an indented line above; *hands* moderate, punctures hardly larger, but more hairy, than those of the thorax, distance from the inner hind angle to the thumb joint exceeding half the length of the thumb; inner edge, with that of the thumb, scabrous, with short spines; *fingers* equal, fasciate with green near the tips; *caudal lamellæ* deeply ciliated, first segment of the middle one two-spined each side at tip, lateral ones with an elevated longitudinal line.

Length from tip of the rostrum to the tip of the tail, nearly three inches and three tenths—breadth of the thorax nine tenths.

This inhabitant of our rivers does not appear to have been noticed as a distinct species; it is larger than the preceding, and very different in the form of the rostrum, and in other characters, which will be obvious from the above descriptions; it approaches much nearer to the *A. fluviatilis* of Europe, to which indeed I should be induced to refer it, but that the hands are not tuberculated as those of that species are described to be. It is known to fishermen by the name of "Craw-fish," not being distinguished by them from the preceding.

* * *

Observations on several species of the genus ACTINIA; *illustrated by figures. By C. A. Le Sueur. Read December* 9, 1817.

(Concluded.)

2. A. *ultramarina.* P. and L. (Plate VII. fig. 5.) Twenty *segments; tentacula* short; *colour* a fine ultrama-

rine; several ranges of tubercles, resembling pearls, on the borders.

This species, when it expands, assumes the form of the A. *olivacea;* the colour constitutes the greatest difference between them. The figure, in the plate, represents it in the act of expanding; and gives it of its natural size.

Inhabits the Southern ocean; discovered in lat. 36° 30′. —long. 28° west.

It was the specimen here described on which Mr. Cuvier constituted his genus *Minyas*, of Le Règne Animal, tome 4, p. 24, pl. xv. fig. 8; but the observations of this author were made on the animal preserved in alcohol; my description and figure were taken from the *living* animal, on board the corvette Geographe, at the place indicated above.

3. A. *flava.* P. and L. (Plate VII. fig. 8.) *Body* narrow, the base expanding in a form resembling a turban; *furrows* numerous and narrow; *tentacula* open at their extremity, and diaphanous.

One cannot perceive, in this species, the punctured tubercles which are conspicuous in the preceding. The *body* is of a yellow colour; the *disc* is white, reddish at its summit, and conic. The figure in the plate is of the size of nature.

Inhabits the Southern ocean; discovered in lat. 34° 30′. long. 6° west.

4. A. *hyalina.* *Body* diaphanous, soft, with several longitudinal lines; *tentacula* longer than the body, of a reddish colour, deeper in the centre, and furnished with verrucose annulations, four lines in length. Inhabits the Atlantic ocean; and attaches itself to fuci.

ded at the extremity; *anal* subequal, narrow, somewhat elongated; *lateral* line obsolete; *back* and *head* of a deep blue, with yellowish tints; sides and abdomen of pale blue; *pectoral*, *ventral*, *anal* and *caudal* fins slightly blended with a reddish green; *opercula* varied with yellow, red and violet; *iris* reddish, *pupil* black.

Scales of a middle size, readily falling off.

B. 7.—D. 19.—P. 18.—V. 9.—A. 18.—C. $22\frac{5}{5}$ rays.

We observed this in October, 1816, on the coast of Marblehead and Sandy Bay, under the name of English Herring, which the fishermen have given to it, doubtless from a resemblance it bears to the Pilchard, from which it differs in having a straight dorsal fin, without emargination, as in the Pilchard. Taken with the seine, and cured for home consumption.

(To be continued)

An Account of the Crustacea of the United States. By Thomas Say. Read November 11, 1817.

(Continued.)

[Since these papers were read to the Academy, we have found, in the southern states, several interesting and apparently new crustaceous animals, descriptions of some of which will now be added, and those of the remaining ones will form a supplementary addition to this essay; this notice is only given to account for the anachronisms that may appear.]

Genus PENÆUS.

Three anterior pairs of feet didactyle, the anterior pair shortest; *interior antennæ* inserted above the line of the exterior ones, which have a large scale attached to the peduncle; *tail* with the middle process elongate-triangular, broader at base.

SPECIES.

1. P. *fluviatilis.* *Rostrum* serrated above with about nine teeth, beneath with about two; *tail* and *terminal joints* of the *abdomen* carinated; *tail* with middle process canaliculate above.

Astacus fluviatilis Americanus. *Seba, tom.* iii. *tab.* 17. *fig.* 2.

Inhabits North America.

Rostrum as long as the scales of the antennæ, grooved each side, armed above with from seven to nine teeth, of which the posterior one is distant from the others, and two, three, rarely four teeth beneath, which, when but two, are distant and placed nearer the tip; a short spine at the base of each interior antennæ, terminating an oblique short carina, which is margined above by a groove that is bifurcated before its posterior termination, with an acute, short spine in the angle; an abbreviated longitudinal line and groove, sometimes obsolete, originates behind the exterior antennæ, forming with the preceding groove the letter N; *eyes* large; *exterior antennæ* double the length of the body, scales longer than the second joint of the interior antennæ, with a deeply impressed submarginal line; *abdomen* with the fourth and fifth segments carinated; sixth segment with the carina more elevated, mucronate behind, a lateral line of longitudinal abbreviated lines on the fifth and sixth segments; *tail* with the middle process deeply canaliculate and mucronate; *feet* with the first and second joints of the anterior pair, and second joint of the second pair armed with a spine beneath; fingers with short fascicles of spines. Length about eight inches.

Rarely brought to the Philadelphia market. Seba's figure is without doubt intended for this species, though all the feet are represented as didactyle; this, however, was, it would appear, an error in the drawing.

The name of *fluviatilis,* applied by this author to our Penæus, is certainly not so appropriate as many others which might be substituted, more especially as it is not an inhabitant of fresh waters, as its name seems to indicate, but is always found in salt or brackish water. Nevertheless, as the name has been given, it would be presumption of the most reprehensible kind in me to reject it, particularly as the species is actually found within the mouths of rivers, probably as high up as the salt water extends.

The sexes are distinguishable from each other by the absence or presence of a connecting membrane to the anterior pair of natatory feet; the membrane is formed by the dilatation and junction of the inner appendages of these parts.

They appear in great numbers in the estuaries of the southern states and Florida early in the spring, when they are caught, to supply the markets, by means of a cast net; the fisherman ascertains their presence in the water at night, by the lines of light which are formed by their darting amongst the phosphorescent molluscæ, when a splashing of the water, or the advance of a boat, alarms them.

When recent, the colour is usually whitish, tinged with reddish, and each side, particularly of the abdominal segments, with very pale greenish yellow, and sprinkled in every part, except the eyes, tips of the caudal lamellæ, pectus and venter, with small, radiate, reddish-brown spots; eyes greenish, with dark moveable pupil; caudal lamellæ tipped with verdigrise green, cilia red; antennæ reddish, the dorsal carina of the fourth, fifth and sixth abdominal segments, and the rostrum, are brown above.

Genus CALLIANASSA.

Four anterior feet didactyle; *anterior pair* largest, very unequal; *second pair* much smaller; *third pair* submonodactyle; *fourth* and *fifth pairs* spurious, obsoletely didactyle; *antennæ* inserted in nearly the same horizontal line, *intermediate* ones with double seta and elongated peduncle of which the terminal joint is much longest, *exterior* ones without lamellæ; *exterior caudal lamella* simple.

C. **major*. *Thorax* one fourth the length of the body, somewhat membranous, with an oval coriaceous plate above, which before forms a rostrum of a very small projecting acute angle; *eyes* very small, placed on the upper side of their peduncles, which are cylindrical, approximate at base, incumbent on and as long as the first very short joint of the interior antennæ, obtuse, and originating under the anterior margin of the thoracic plate; *exterior antennæ* longer than the thorax, two terminal joints of the peduncle equal, *seta* more than thrice the length of the peduncle; *interiores* more than twice the length of the others, more robust, deeply ciliated beneath; *external pedipalpi* with the second joint much largest, compressed, oval, third joint not so large as the fourth, which is semioval, terminal joint or nail closing on the edge of the preceding joint; *feet*, with the exception of the two last ones, compressed; *anterior larger foot* placed indifferently on the right or left, and is the only part that is of a compact crustaceous consistence, third joint sublinear, granulated, compressed within, convex on the exterior side, raised into an angle on the middle of the lower edge and incurved at base; *carpus* trilateral, granulated, not concave, at base beneath projected into a prominent angle or hook, which on the hind edge is furnished with a few short stout hairs, superior edge simply emarginate near the base; *hand* very much elongated, sublinear, compressed, glabrous, two-jointed, first joint a little contracted towards the base, not broader than half the length of the carpus, second joint equal in breadth to, and, excepting the fingers, two thirds the length of the preceding joint; *fingers* more than half as long as the preceding joint, with fasciculated hairs, thumb rectilinear at base, decurved at tip and armed with a strong, truncated tooth behind the middle, finger unarmed, incurved; *second pair* of feet with the third joint obtriangular, equal at tip to the base of the fourth, which, with the thumb and finger, is triangular, terminal joints deeply ciliated; *third pair* with the penultimate joint transverse, attached to the preceding one by the middle of the base, deeply ciliated and terminated at the superior tip by a very small joint, which is rounded at base and acute at tip; *fourth* and *fifth pairs* somewhat cylindrical, terminal joints comose, thumb and projecting angle or finger concealed by the hair; *abdomen* of six segments, two anterior ones membranaceous, the first narrowed to the base, supported on each side, and at the tip beneath, by a semicrustaceous rib, with a linear appendage at each of the hind angles beneath, the second segment supported on each side by a vitreous scale, and at base beneath by an angular semicrustaceous rib, with linear appendices as in the preceding segment; third, fourth and fifth segments semicrustaceous, octangular, subequal; sixth segment subquadrate, narrowed behind and contracted each side in the middle; *natatory appendices* attached to the third, fourth and fifth segments, composed each of a semilunate plate, with an incurved fin attached to the anterior lateral base, which when at rest is placed on the anterior face of the plate, and the plate when at rest is incumbent forwards; *tail* rounded at tip, contracted towards the base, and about two thirds the length of the preceding segment; *lateral lamellæ* simple, longer than the tail, inner one linear, comose, exterior one dilated, triangular, ciliated at tip.

Inhabits the coasts of the southern states and of East Florida.

Cabinet of the Academy.

Length of the specimen four and a half inches.

The exuviæ of this singular animal, particularly of the large anterior foot, occurs very frequently on the sea beach of the southern states early in the spring. It is rarely seen, owing to its recluse mode of life. We found this specimen by digging in the sand of the bay shore of the river St. John in East Florida, about eighteen inches below the surface, near low-water mark; it had formed a tubular domicil, which penetrated the sand in a perpendicular direction to a considerable depth, the sides were of a more compact consistence than the surrounding sand, projecting above the surface about half an inch or more, resembling a small chimney, and rather suddenly contracted at top into a small orifice. The deserted tubes of the Callianassa are in many places very numerous, particularly where the sand is indurated by iron into the incipient state of sand-stone; they are always filled up, but may readily be distinguished by the indurated parieties and summit often projecting a little above the general surface.

A curious parasite abounds on the body of this species, perfectly distinct from the genus Ione of Mr. Latreille; a description of it will be given in its proper order.

Genus GEBIA.

External caudal lamellæ simple; *tail* quadrate; *antennæ* placed on the same horizontal line, *interior* ones short, with two setæ and elongated peduncles, of which the third joint is much longest, *exterior* ones destitute of the accessory lamina at base; *feet* ten, two anterior ones monodactyle with a projecting angle for a finger.

SPECIES.

G. * *affinis*. *Thorax* glabrous, transversely grooved in the middle by an arcuated line, behind which, on each side, is a minute spine, anterior part of the thorax covered with numerous fascicles of short, rigid hairs, arising from short tubercles, or impressed interrupted lines somewhat arranged in longitudinal rows, broad before and divided into a short canaliculated rostrum, and a prominent tooth each side, which is rather shorter, and separated from it by a groove, which is longer than that of the rostrum, and like it glabrous, rostrum and teeth hairy to their tips, the latter with a short spine beneath; *eyes* smaller than their peduncles, which are hairy above, concealed; *anterior* feet largest, ciliated with long hair beneath (excepting the carpus) on the inner edge; second joint with a spine beneath, third joint with four or five beneath and one above near the tip; *carpus* subtriangular, with three very small ones above, five or six at tip larger, and the largest acute one at the inferior inner tip, an impressed longitudinal line on the outer side; *hand* not broader than the carpus, linear, nearly equal to the third joint, with three elevated ciliated lines above, two impressed ciliated ones on the outer side, beneath with long hair, and a groove, which is a little oblique, and marks the origin of the short angle or finger at tip, a short spine above at base, finger as long as the carpus, with three or four lines of rigid hairs, grooved on the outer side and glabrous within; *second pair of feet* ciliated with long hair beneath, third joint with a prominent acute spine at base beneath, and another somewhat dilated and compressed at tip above, nail deeply ciliated above; *third pair* hairy on the terminal joints, third joint about three-spined beneath and a little hairy; *fourth* and *fifth pairs* hairy on the terminal joints, nails very small and concealed by the comose termination of the feet, those of the former closing on the tip of the preceding joint, those of the latter upon a projecting angle of the preceding joint; *abdomen* glabrous, segments each with a lateral, longitudinal, impressed, submarginal line, the first, second, sixth and fifth subequal, the latter shorter, third and fourth equal shortest; *natatory feet* composed of a suborbicular peduncle, supporting two deeply ciliated lamellæ, of which the outer one is more than as long again as the inner one, suboval, attenuated at base and acute at tip, inner one oval, narrowed at base; *caudal lamellæ* short, ciliated at tip, deltoid, subequal, the inner one smaller, truncate at tip, a longitudinal elevated line in the middle, and a costal outer margin which is slightly angulated near the base, outer one somewhat rounded at tip and at the inner angle, two raised lines near the middle, which are recurved at tip, and an outer costal margin; *tail* subquadrate, with an impressed longitudinal line, entire at tip.

Inhabits Georgia.

Cabinet of the Academy.

Length two inches and a quarter.

Found on an oyster bed near the edge of the water at low tide, and appears to be rare. Its analogue of Great Britain, upon which this genus was founded by Dr. Leach, discovered by Mr. Montague, and by him described in the Transactions of the Linnean Society of London, is also very rare, and inhabits the subterraneous passages of the Solens or Razor shells; our species is very similar to that, but differs from it more especially in having the extremity of the tail entire.

Genus ALPHEUS *of Fabricius.*

Feet, two anterior pairs didactyle; *carpus* of the second pair divided into several joints.

SPECIES.

1. A. * *heterochælis*. *Hands* of the anterior feet very unequal, larger one deformed and having a very small transverse carpus; *rostrum* simple, spiniform, acute.

Inhabits coasts of the southern states.

Cabinet of the Academy, and Museum of South Carolina.

Thorax glabrous, unarmed; *rostrum* carinate in the middle and terminating in an acute point which nearly attains the tip of the first joint of the inner peduncle; covering of the eyes convex, prominent, rounded at tip; *superior antennæ*, a small scale terminating in an acute spine and placed at the outer base of the peduncle; *pedipalpi* deeply ciliated, attaining the tip of the peduncles of the antennæ, first joint bicanaliculate beneath, third joint spinose beneath, spine movable, tip acute, a little hairy; *inferior antennæ* nearly as long as the body; *anterior feet*, hands very unequal, the larger one appearing deformed, nearly as large as the thorax, compressed, excluding the fingers, semioval, abruptly constricted near the fingers on each edge; *fingers* very robust, thumb cultrate, near the base, within a prominent lobe, or tooth, which is received into a corresponding fossula of the base of the finger, surface a little hairy, hairs assembled at tip into a double row, finger concave within for the reception of the thumb, obliquely emarginate above on the inner edge near the tip, and extending into an angle near the middle of the inner edge; *carpus* minute, transverse, carinated, shorter than the thumb; *second pair of feet* smallest, but not shorter than the hind ones; *three posterior pairs*, penultimate joint armed beneath with moveable spines and a few hairs, nails horny, glabrous, acute; *tail* at tip rounded, narrower than at base, deeply ciliated, above behind the middle four, small, conic, moveable spines, placed in cavities; *external lateral lamella* biparted, two small spines at the outer tip of the first segment, and two larger at the tip of the peduncle, tips deeply ciliated; *colour*, when recent, green, sprinkled with numerous, small, brownish spots, a large dark green spot at tip of the caudal lamellæ; hand beneath white, fingers tipped with white.

Length nearly one inch and a half.

The larger hand of this animal attracts attention by its unusual size and deformed appearance; the individual of the museum of South Carolina was found by Mr. L'Hermenier on the coast of that state. The specimen in the collection of the Academy we found on the coast of Amelia Island, Florida, concealed under a considerable mass of Ascidia; when placed in water, the thicker filament of the superior antennæ was supported in an erect posture, vibratory, and appeared deeply ciliated near the tip.

I have placed this in the genus Alpheus of Fabricius and Latreille, as the characters will not agree with those ascribed to that genus by Dr. Leach, such as "exterior caudal lamella simple; third segment of the abdomen gibbous above," &c. the antennæ also are relatively situate as in *Astacus*, and the scale at the base of the outer antenna is not proportionably larger than in that genus.

2. A. * *minus.* *Hands* of the anterior feet very unequal, larger one inflated, oblong-oval, equal; *carpus* very small; *rostrum* spiniform, and a lateral spine before the eye.

Inhabits coasts of the southern states, and of East Florida.

Cabinet of the Academy.

Thorax glabrous, *rostrum* and *convex lid of the eye* forming three subequal spines before, of which the rostrum is somewhat longer and more acute, the lateral spines conic-acute; *exterior antennæ* shorter than the body, scales at base acute, spiniform; *larger hand* oblong-oval, not compressed, colour white, tip red, banded near the base of the fingers with white in the female, and white tipped with green in the male, *nails* short; *external pedipalpi* obtuse at tip and crowned with spines.

Length, male four fifths of an inch, female one inch.

It is very possible that this may be the young of the preceding, notwithstanding its diverse characters, but we are at present disposed to consider it as distinct. The above description is drawn from seven specimens of different ages, all agreeing perfectly in these traits. They occurred in recent Spongia, &c. cast ashore by the waves.

Genus CRANGON.

Anterior feet largest, monodactyle, and furnished with a spurious finger; second and third pairs very slender, simple; fourth and fifth more robust; *antennæ* inserted in nearly the same horizontal line, exterior ones with a large scale at base, interior ones of two setæ; *exterior caudal lamellæ* simple.

SPECIES.

C. * *septemspinosus*. *Rostrum* not so long as the eyes, with a spine behind it on the thorax, and another on each side; *anterior feet* armed with a spine on the third joint beneath.

Inhabits bay shores and inlets of the sea. Common.

Thorax seven-spined, one of which is placed on the back before the middle, a lateral one on each side in a line with the dorsal one, another at the external canthus of the eye, and a more prominent one at the anterior angles, situated adjoining a shorter one with which the basal joint of the scale of the exterior antennæ is armed; two impressed lines arising, one from an oblique fissure in the superior margin of the orbit of the eye, and the other at a fissure in the external canthus, are confluent above the lateral thoracic spine, and disappear behind the middle of the thorax on each side, a third line originates from the fissure in the external canthus, passes beneath the lateral spine and forms, with the two preceding lines, the letter N; *rostrum* shorter than the eyes, obtuse, margin elevated; *eyes* little prominent; first joint of the peduncle of the interior antennæ, concave above for the repose of the eyes, furnished on the external side with a submucronate small scale, resembling an elongated continuation of the inferior margin of the orbit of the eye, and armed beneath with an obtuse spine which is visible on dissection; *exterior antennæ* as long as the body, annulate with blackish-brown, scales nearly as long as the interior antennæ; spine of the anterior feet situate near the middle of the third joint beneath; *finger* spiniform, prominent, inflected; middle process of the tail simple, conic; colour, when recent, pale cinereous, with very numerous, irregular, stellate, blackish-brown spots.

Length of the body, from the tip of the rostrum to that of the tail, one inch and two fifths nearly.

An active little animal; when at rest at the bottom of the water it is not readily discoverable, owing to its being somewhat translucent and of a pale colour. This species, and those of the genus Palæmon, &c. are indiscriminately called *Shrimps* in this country. There is no doubt but our Crangon septemspinosus strongly resembles the C. *vulgaris* of Europe, which is the true shrimp; I have, in fact, considered it heretofore as the same, but it appears to differ in the number of spines.—It is found as far south as East Florida.

Genus PALÆMON.

Exterior antennæ inserted below the line of the interior ones, and furnished with a large scale at base; *interior antennæ* with three setæ; *exterior lamellæ* of the tail undivided; *ultimate joint* of the *external palpi* shorter than the preceding; *four anterior feet* didactyle, first pair smaller.

SPECIES.

1. P. * *vulgaris.* *Rostrum* acute, with eight or nine teeth above, and three or four beneath; *fingers* of the larger pair of feet shorter than the palm of the hand.

Inhabits bays and estuaries. Very common.

Rostrum as long as the scales of the antennæ, ciliated between the teeth; *thorax* armed with two spines on each side, which are equal, and placed one at the base of the interior antennæ, and the other at the base of the exterior ones; an impressed line passes between these spines, and terminates about the middle of the side, an obsolete, oblique, abbreviated one originates at the superior margin of the orbit of the eye; peduncle of the scale armed with a spine at the exterior tip; first joint of the peduncle of the interior antennæ concave above, and furnished with a spine near the external base, and another near the external tip; *carpus* of the first pair of feet rather longer than the preceding joint, armed with a spine on the inner tip, hand elongate oval, unarmed, about one half as long as the carpus, fingers equal; carpus of the second pair, nearly equal to the preceding joint, unarmed, shorter than the palm of the hand, hand elongated, fingers uncinate at tip, shorter than the hand, linear, equal, with two or three small, obtuse teeth at the base, middle process of the appendages of the tail, with two moveable, prostrate, conic spines placed each side in cavities; tip truncated and furnished with four moveable spines, of which the interior ones are much more elongated, and separated by an immoveable shorter one in the middle; interior *antennæ* about half as long as the exterior ones, the short seta ciliate with long, parallel, equidistant hairs; colour whitish, almost pellucid, with a few dark points, eyes dark, peduncles spotted with yellow.

Length from the end of the rostrum to the tip of the tail, one inch and two fifths.

This species is one of those which pass under the name of *Shrimp*, but they all differ specifically, as this does generically, from the true shrimp of Europe. It is congeneric with the European *Prawn*, and in point of form resembles it much, but that arrives to the length of five inches. Found as far south as East Florida.

2. P. * *tenuicornis*. *Rostrum* with about eleven or twelve teeth above, and six or seven beneath; fingers of the larger feet rather longer than the palm of the hand.

Inhabits the Banks of Newfoundland.

Rostrum as long as the plates of the antennæ, densely ciliated between the teeth; spines of the thorax, and of the peduncles of the antennæ, placed as in the preceding species; *carpus* of the first pair of feet unarmed, and hardly longer than the hand, fingers linear, a little reflected, as long as the palm; *carpus* of the second pair as long or rather longer than the palm of the hand, fingers a little longer than the palm and reflected; antennæ very slender, white, interior ones more than two thirds of the length of the exterior ones.

Length one inch and one fifth.

Considerably resembles the preceding, but differs from it in the number of teeth in the rostrum, in the more attenuated antennæ, and greater length of the inner ones; the wrists, hands and fingers also are proportionally different, the fingers are a little curved upwards, but in the preceding they are in a right line with the hand. Described from a specimen in my cabinet; and another in the collection of the Academy, presented by captain Hamilton.

ORDER STOMAPODA. *Latr.*

Head distinct from the thorax, and divided into two parts, of which the anterior one supports the antennæ and the eyes; *eyes* pedunculated; *branchia* abdominal, placed behind each pair of natatory feet.

Genus SQUILLA.

Thorax exhibiting several joints; *interior antennæ* with three, articulated setæ; *exterior antennæ* simple, furnished with a scale; *abdomen* six-jointed; *tail* flabelliform.

SPECIES.

S. * *Empusa*. *Abdomen* with eight, *four last joints* of the *thorax* with four, raised longitudinal lines; *four last joints* of the *thorax* not bifid over the coxæ of the feet; large plate of the thorax angulated over the coxæ of the arms.

Inhabits the coast of Rhodeisland.

Cabinet of the Academy.

Thoracic plate with an obvious lateral angle before the rounded termination; second segment shortest, two-spined on each side at the edge, of which one is placed above the other; third and fourth segments entire over the insertion of the coxæ of the feet, mucronate; fifth segment somewhat rounded over the insertion of the posterior feet, where it is partially concealed by a small squamiform appendage, which is attached by a suture to the first joint of the abdomen; *thumb* armed on the inside with five, long, permanent spines, and terminated in a similar, but more elongated one, all received at tip in corresponding cavities of the anterior edge of the hand; *hand* elongated, thickened, pectinated on the anterior outer edge, parallel with the recipient cavities, three moveable spines near the base, inflected, so as to meet the terminal spines of the thumb; third or principal joint, unarmed; carinated line behind the anus very short.

Length of the female four and a half inches, male two and three quarter inches.

This fine species was found by Mr. Le Sueur on the coast of Rhodeisland, and was presented by him to the Academy. The very striking resemblance which it bears to the *S. mantis* has hitherto caused it to be confounded by naturalists with that species. But an attentive examination of its characters, and a comparison of them with those of the species just mentioned, will convince us that it is perfectly distinct. I will, in this place, briefly mention two or three differences, which of themselves are sufficient to justify a separation of the American species. The large plate of the thorax, in the foreign specimen of S. mantis under examination, is perfectly simple over the coxæ of the large feet or arms, whereas in our species, that part is extended into an angle; the next segment is, it is true, two-spined on each side in the European animal, but those spines are placed horizontally, and not, as in our species, vertically, with respect to each other; the two following segments, also, are deeply emarginate over the insertion of the feet, but, in the species here described, they are simply mucronate in that part, the anterior lobe, which would form the notch, being wanting.

The specific name is taken from Empusa in Entomology, a genus of insects, which was separated by Mr. Illiger, from the Linnæan genus mantis, to which it has as much affinity, as the Squillæ here compared have for each other.

The S. empusa inhabits the coast as far south as East Florida, it varies a little in colour. I here add a description of the colours, &c. of a recent male specimen; *feet* white, *anterior ones*, second and third basal joints tinged with rosaceous and edged with yellow at their tips; *interior antenæ*, peduncles blackish, joints yellow at base, seta white annulate with black; *exterior ones*, peduncles dusky, seta white, scale yellow or greenish on the terminal half, and indistinctly spotted with minute brownish-black spots; *segments of the body* margined behind with darker green and edged with yellow; *tail* tinged with rosaceous, and varied with blackish and yellowish; *lamellæ*, inner ones black, paler at base, outer ones, first joint black, base and spines white, second joint yellow, inner margin black; *peduncle of the lamella* elongated, terminating in two white spines, of which the inner one is rather longer than the inner lamella, slightly toothed on the middle of its length, from whence a double groove proceeds to the tip, a spine over the insertion of the first joint of the external lamella which has also a spine under the insertion of the accessary plate; eyes cylindric, rounded at tips,
p253 emerald green, brilliant, placed obliquely on their peduncles.
The male may be readily distinguished from the other sex, by its smaller size, & by the presence of a small fistulous body, attached near the base of each of the hind feet beneath.

An excellent specimen of this shell occurs in the collection of the Academy presented by Mr. O'Kelly, of Dublin, Ireland.

An Account of the Crustacea of the United States. By Thomas Say. Read June 10, 1818.

(Continued)

Genus *DIASTYLIS †

Essential Character.

Feet bifid; *antennæ* destitute of accessory scales; *tail* with a single bifid style on each side of the first segment, second segment terminated by a simple one.

Natural Character.

Thorax six-jointed, anterior one much larger than the others conjuctly, laterally deflected, compressed, embracing the sides, and rostrated; *rostrum* permanent, concave beneath, concealing the base of the intermediate antennæ; *antennæ* four, placed on nearly the same horizontal line, inner ones four-jointed, three basal joints robust, first and second subequal, very short, concealed by the rostrum, third joint articulated, as long as the two preceding ones conjunctly, bifid, inferior division much shorter, exterior antennæ simple, longer than the inter-

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† In allusion to the caudal appendices.

mediate ones, basal joint robust, without a scale, terminal joint articulated; *external pedipalpi* very large, pediform, nearly attaining the front, first joint very much elongated, compressed, remaining joints very small, cylindrical, subequal; *feet* five pairs, bifid, anterior pair truncate at tip, shorter than the external pedipalpi, second pair acuminate, third, fourth, and fifth pairs reflected, acuminate, destitute of nails, armed towards the tip with robust hairs; *abdomen* five-jointed, cylindric, much narrower than the thorax, four anterior joints subequal, fifth rather longer, first and second segments furnished beneath with natatory feet; *tail* biarticulate, first joint with a lateral style, composed of a cylindrical peduncle and bifid, short seta, second joint smaller than the preceding, terminated by a simple cylindrical style.

Species.

D. **arenarius*. *Thorax* above a little undulated, glabrous, as long as the abdomen and tail conjunctly, edge each side before minutely crenate; *rostrum* short, obtuse, triangular; intermediate antennæ two thirds the length of the first joint of the thorax, inferior seta less than half as long as the superior one, exterior antennæ longer than the first joint of the thorax, basal joint attaining the tip of the third joint of the inner antennæ; *lateral caudal styles* divaricated, longer than the tail, peduncles somewhat dilated at tip, setæ half as long as the peduncle, and appearing articulated, terminal style less than half the length of the lateral ones.

Length one fifth of an inch.

Inhabits Coast of Georgia and Florida.

Cabinet of the Academy.

I think there is little doubt of this animal being congeneric with *Cancer scorpioides,* described by Montagu in the seventh volume of the *Trans. Lin. Soc. of Lond.,* and indistinctly represented on plate sixth of that instructive work. The general appearance, particularly of the posterior part of the body in that figure, its curve, the caudal appendices &c., is very similar to that of the species upon which I have constructed this genus. The author in describing it observes, that it was a mutilated specimen, but the only one he had seen; "the head or fore part was wanting, consequently no eyes nor antennæ could be observed; but the rudiment of arms on the fore part of the body" &c. Notwithstanding these remarks of that intelligent observer, I am led to believe, by comparing his figure and description with this animal, and judging from the analogy between them, that it was nearly complete, wanting only the intermediate antennæ. But it is necessary to remark, that in our animal there is no distinct head, unless that part of the body can be considered as such, which I have called the first segment of the thorax; this is the more probable since neither of the five pairs of feet which I have enumerated, are distinctly perceived to arise from that part. It is true, that those members which Mr. Montagu has called "rudiments of arms," most obviously have their origin there; yet these, although much larger than either of the feet, and equidistant from the two anterior pairs, I have supposed, from their form and apparent position, to be no other than palpi, and have described them as such. Immediately under these external pedipalps is a much smaller distinct and filiform pair. The exterior antennæ are concealed each side beneath the deflected margins of the thorax. The eyes are probably very retractile, and placed below the antennæ; I did not discover them.

I found but a single individual in a handful of sand taken from one of those pools which are frequented by Lepidactalis.

Cancer esca, Gmel., an inhabitant of the Norway sea, said to be the chief food of the Herring, will, judging from the description, form a third species of this genus. Mr. Montagu considered it similar to C. scorpioides.

By the bifid feet Diastylis claims kindred to the genera Mysis and Nebalia; and when placed immediately in succession to the latter, will contribute another link, by which the Macrouræ, through the medium of the Schizopodæ, are conneted to the Monoculii by Cyclops, the most proximate of the genera of that order.

ORDER III.

AMPHIPODA. *Latr.*

Head distinct from the thorax, and simple; eyes immoveable, fixed in the shell; mandibles palpigerous, three pairs of maxillæ, exterior ones resembling a lip with two palpi or two small feet united at the base; branchiæ vesicular, and situate at the inner base of the feet, with the exception of the anterior pair.

Genus *LANCEOLA.†

Essential Character.

Antennæ four, terminal joints not articulated; *antennæform processes* above the mouth; *caudal styles*, three pairs, peduncle depressed linear, supporting two lanceolate lamellæ.

Natural Character.

Body soft, external covering membranaceous; *head* very short, transverse; *eyes* longitudinal, placed opposite the base of the superior antennæ; *clypeus* projecting into an acute angle; *front* concave; *antennæ* four, unequal, inferiores longest, four jointed, compressed, basal joints very short, third and fourth longer, equal, the latter entire, superiores abbreviated, compressed, triarticulate, basal joints short, robust, concealed by the clypeus, terminal joint not articulated, linear, compressed, obtuse; *mouth* protuberant; *labrum* emarginate, supporting two filiform, triarticulate processes, of which the first joint is very short, second linear, third shorter, subulate; *labium* (pedipalpi) bifid, closing the mouth, laciniæ linear, inner edges hirsute, tips

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† In allusion to the form of the terminal divisions of the caudal appendices,

rounded; *thorax* oval, convex above and beneath, seven jointed, sutures imbricate; *feet* fourteen, simple, two anterior pairs compressed, terminal joints conic compressed, remaining pairs somewhat cylindric, armed with a minute, subterminal nail, sixth pair much the longest; *vesicular branchiæ* oblong, distinct, placed at the inner base of the feet, excepting the first and seventh pairs; *abdomen* abruptly much narrower than the thorax, of three subcylindrical segments, each furnished with natatory feet; *tail* depressed, three jointed, joints furnished each with a lateral style, which consists of a foliaceous linear peduncle, supporting two acute lanceolate, subequal lamellæ, two anterior styles equal, posterior pair rather shorter, terminal segment attenuated between the posterior styles.

SPECIES.

L. **pelagica*. *Antennæ*, inferiores more than half as long as the thorax, superiores attaining the middle of the third joint of the inferiores; *antennæform processes* surpassing the second joint of the inferior antennæ; *thorax*, first segment shortest, acutely angled before near the clypeus, second and third segments longest, equal; *feet*, anterior pair shortest, third, fourth, and seventh equal, fifth longer, sixth longer than the thorax.

Length one inch and one fourth

Inhabits.—Gulf-stream.

Cabinet of the Academy.

Two specimens of this animal were found by Capt. Hamilton, in the Gulf-stream, and from them, although both females, the above descriptions are taken; the male not having yet come under examination. I am sensible that it is not perfectly consistent with a due degree of caution, to construct a genus for the female of an animal, when, as in this case, the male may present diverse characters, or such as are much more prominent and accessible, although this has been often done. But in the present instance we have an animal to give an account of, whose generic traits widely differ from those of any other as laid down by naturalists, so that in order to be introduced into this paper at all, it is believed that the formation of a distinct genus is unavoidable; this is therefore offered provisionally, to be altered, rejected, or retained, as the male, when discovered, may justify.

Its generic affinities are rather difficult to determine. It is allied to Amphipoda by the vesicular branchiæ, and by the caudal appendices to the genus Phronima, more than to any other of this order; in the external appearance of the mouth there is a great similarity to the Linnæan Oniscii, the labium being nearly the same in form. In general form it somewhat resembles Oniscus cæruleatus of Montagu, *Trans. Linn. Soc. Lond.* vol. xi, from which I suppose Doct. Leach has formed his genus Praniza, which, although but slightly characterized by Mr. Latreille, in *Le Règne Animal,* tom. 3, p. 54, and without any reference to books or specimens, is evidently very distinct.

Observations on the genus GLYCINE, *and some of its kindred genera. By Stephen Elliott, of Charleston, S. C. Read June 23, 1818.*

In endeavouring to examine, and reform, the characters of plants, an inhabitant of this country feels sensibly the disadvantages under which he labours. There are here no Botanic Gardens, where living plants, collected from different countries and climates, may be collated and compared; no large herbariums, where even specimens may be examined; and no large libraries, devoted to natural history, where figures might sometimes serve to explain and illustrate an obscure or doubtful plant. I shall not, therefore, attempt to arrange all the species which have hitherto been thrown together in the genus *Glycine*, but shall confine myself, in this paper, to those native plants of North America which I have had an opportunity of inspecting.

The genus *Glycine* appears to have served for some time, in the class Diadelphia, the same purposes which the genus *Sophora* answered in the class Decandria; to have been an ill defined genus, where every plant, (some scarcely kindred species) which did not, by marked characters, belong to other known genera, found a resting place. In this manner the species have increased from two to forty-four, and now present an assemblage of ill associated plants. Many late writers have noticed some of the anomalies of this genus, but no one, I believe, has yet attempted a radi-

guminibus compressis falcatis ; radicales apetali, fertiles, leguminibus ovatis, torulosis, monospermis.

1. *Monoica.*

Glycine monoica. Willd. Sp. Pl. 3, p. 1055.—Mich. 2, p. 64.—Pursh, 2, p. 485.

Anon. Caroliniens ? Walt. p. 188.

To this genus the *Glycine subterranea, sarmentosa,* and *comosa,* probably belong; but as I am unacquainted with these plants, I have omitted their specific characters.

In ascribing to the cauline flowers of this genus a compressed falcate legume, I have relied on the general accuracy of Walter. I have never been able to discover one fertile. If this should be an error, while it would render the name I have given to this genus less appropriate, it would show more strongly the necessity of removing it from its present station. In truth I know no principles of classification by which the *G. monoica, tomentosa, angulosa, frutescens,* and *apios,* can continue members of one common family.

LIBRARY
DIVISION OF CRUSTACEA

An account of the Crustacea of the United States. By Thomas Say. Read July 7, 1818.

[Continued.]

Genus GAMMARUS.

Body thirteen-jointed exclusive of the head, and including the three-jointed tail; *antennæ* with the last joint composed of numerous minute ones, superiores as long or longer than the inferiores, four-jointed, penultimate joint with a seta at the apex, inferiores five-jointed; *feet* fourteen, the two anterior pairs monodactyle, subequal, hands oval, third and fourth pairs smallest; *tail* with small fasciculate spines above and bifid ones at tip.

SPECIES.

1. G. **fasciatus*. *Body* whitish, translucent, with obsolete greenish bands; *eyes* reniform, situated at the outer base of the antennæ, terminal joint of the superior antennæ with about thirty articulations.

Inhabits the larger streams of fresh water.

Cabinet of the Academy.

Body punctured, fasciate with faint green, which after death becomes of a rufous colour; *superior antennæ*, second joint annulate with ferruginous, seta attaining the tip of the fifth articulation of the terminal joint, terminal joint with from twenty-five to thirty articulations; *inferior antennæ* hairy, second and third joint each with a ferruginous spot above, first joint of each pair, with a green spot on the inner side; *feet* hairy, faintly spotted with green, fifth and sixth pairs generally reflected above the back, seventh pair reflected when swimming; three last segments of the body composing the tail, each with three fascicles of short spines above; *eyes* marginal, smaller above; *hands* oval, palm unarmed.

Length not quite half an inch.

This species is a common inhabitant of our rivers, and is frequently introduced into Philadelphia, in the Schuylkill water; an individual placed in a glass of water, swam nimbly about sometimes upon his back, the superior antennæ being projected forwards, and the inferior pair decurved; when at rest it was placed on its side, with the body incurved; it was not very particular in the choice of food, it tore out of the shell, and eagerly devoured, a young *Lymnæa catascopium*, and also eat some vegetable food. The antennæ assists these animals very much in obtaining the minute particles of food, which abound in the water; when an object of a proper size comes within a moderate distance of his mouth, one of them strikes it with great dexterity into the grasp of the four anterior feet, the first pair of which appears to be most employed. It differs from the G. *pulex* of Europe, more especially in having reniform eyes. An extraordinary resemblance prevails, between this species and an inhabitant of the salt water, the only difference appears to be in the somewhat larger size of the latter, but not having succeeded in discovering a specific difference, I consider them as the same; in colour they may differ inconsiderably.

2. G. *minus*. *Eyes* reniform; *superior antennæ* longer than the inferior ones, terminal joint with about twelve articulations.

Inhabits rivulets and small fresh water streams.

Cabinet of the Academy.

Body whitish, with a few very pale fulvous lateral spots; *eyes* reniform, blackish, placed at the exterior base of the superior antennæ; *superior antennæ* obviously longer than the inferior ones, seta short, attaining the tip of the second articulation of the terminal joint, terminal joint with about twelve articulations.

Length three-twentieths of an inch.

Found in brooks under stones, and may be readily discovered by taking a stone out of the water, and inspecting its inferior surface.

3. G. *mucronatus*. *Eyes* irregularly reniform, blackish; *antennæ* subequal; eighth, ninth, and tenth segments of the body mucronate above.

Inhabits the coast of the United States.

Cabinet of the Academy.

Antennæ subequal, superior ones with about twenty articulations in the terminal joint, seta attaining the tip of the fourth articulation; *eyes* somewhat reniform, truncate above, and forming an angle towards the upper base of the antennæ; eighth, ninth, and tenth joints of the body, terminating above in a strong acute, somewhat elevated spine; rather smaller than G. fasciatus.

This species, which is an inhabitant of the salt water, I caught in the bay of Egg-harbour, and near the mouth of St. John's river, Florida; it is remarkable for the dorsal, immovable spines, by which it is very readily distinguished from others, but it is necessary to observe that in the male these dorsal spines are often less distinct than in the female, sometimes indeed, in this sex they are entirely wanting on the eighth and tenth segments, and that of the ninth is very small.

4. G. **appendiculatus. Caudal segments,* and *three terminal segments of the body,* dentated on their posterior edges; *feet* in one sex, second pair didactyle.

Inhabits Georgia.

Cabinet of the Academy.

Clypeus not extended beyond the frontal curve; *eyes* moderate, oval, hardly extending above the inferior base of the superior antennæ; *feet,* anterior pair filiform, *hand* somewhat dilated, *nail* placed on the middle of the tip, short, curved, acute, second pair of feet in one sex with one of the hands very large, didactyle, nearly equal to one half of the body, subobovate, inferior edge rounded, superior one rectilinear, terminating at the base of the thumb in an obtuse angle, tip or palm of the hand tridentate, lower tooth very small, fingers deflected nearly right angularly, thumb grooved, groove forming an emargina at the outer tip for the reception of the tip of the finger; (in the other sex the second pair of feet are monodactyle, longer than the first, with the lamellary appendice of the inner base much elongated, compressed, attenuated, pediform, two-thirds the length of the foot) *body*, eighth, ninth, and tenth segments dentate at their posterior tips above, with seven strong, prominent teeth, of which the dorsal one is shortest; *tail*, two first segments armed at tip above with two prominent acute teeth.

Length three-tenths of an inch.

This animal corresponds with the generic characters in having the accessory seta to the antennæ, and the moveable spines on the tail, though it is observable that these spines are few in number and not fasciculated. But in the form of the four anterior feet it differs very much from the other individuals of this genus, and makes a near approach to *Orchestia*, from which it is distinguishedby the length of the superior antennæ, of which the characters agree with those of Gammarus. The remarkable elongation of the inner lamella of the second pair of feet in one sex is a very striking peculiarity of this species, more especially observable as the feet themselves are concealed when at rest, and that so effectually, that although confident of their existence it was not without considerable difficulty that I brought them to view. In consequence of this relative position of the second pair of feet and their appendices, the latter would be mistaken for the feet, by any one who was not attentive to the general organization of these parts. It is probable that this animal will form a new or sub-genus, which would very properly arrange under Gammarus.

Genus *LEPIDACTYLIS.

Essential Character.

Antennæ four-jointed, furnished beneath with plumose ciliæ, intermediate ones with an accessory seta placed at tip of the third joint. *Clypeus* produced between the bases of the intermediate antennæ and acute. *Feet*, two anterior pairs simple, equal, third and fourth subequal, didactyle, fingers lamelliform; remaining feet spinous without nails.

Natural Character.

Body compressed-oval.

Head distinct, subquadrate, extended into a short acute rostrum between the intermediate antennæ; *antennæ* subequal, four-jointed, *inferiores* rather longer, incurved, second and third joints dilated beneath, compressed, and ciliated beneath with plumose, elongated hairs, these two joints when at rest form a continued oval, the former is dolabriform, terminal seta eight-jointed, verticillate, *superiores* porrected, basal joint dilated, depressed, second one much smaller, placed on the inner tip of the preceding, and with that joint furnished with plumose ciliæ beneath, third joint much smaller than the second, and furnished at the tip with a triarticulate accessory seta, parallel with the terminal joint, terminal joint of about eight segments, and not longer than the preceding joints conjunctly; _eyes_ convex, touching the anterior edge of the head; _thorax_ with seven segments, and lateral scales; _feet_ fourteen, two anterior pairs in each sex simple, filiform, equal, third and fourth pairs equal, didactyle, hands compressed, not dilated, finger rounded, thumb oval, lanmlliform, remaining feet gradually larger, compressed, armed with short spines, and destitute of a nail; hind pair largest, antipenultimate joint lengthened above, and nearly attaining the tip of the following joint which is crenate and spinous on the edge, terminal joint compressed, serrated, and spinous on the edges, and truncate at tip; anterior pairs of feet furnished at their inner bases with oblong oval moveable lamellæ

Abdomen of three segments, abruptly narrower than the thorax, each furnished beneath with natatory feet, consisting of short, rounded peduncles, supporting double setæ, of which the outer ones are longest, third segment abruptly inflected at tip; _tail_ inflected, armed with bifid styles.

SPECIES.

L. *_dytiscus._ _Eyes_ orbicular; _body_ when recent white, with an abbreviated internal ferruginous vitta, including the alimentary canal; _accessory seta_ of the intermediate antennæ, attaining the tip of the fourth segment of the terminal joint; anterior pairs of feet hairy.

Length, male one quarter, female three twentieths of an inch.

Inhabits coast of Georgia.

Cabinet of the Academy.

This active little animal is one of the many inhabitants of small pools of water left by the recess of the tide on the coast of Georgia and Florida, and it is probable, considering the vast range of animals on this eastern part of North America, that it occurs much farther north, especially as it is found in considerable numbers in the localities I have assigned to it. In those shallow pools its presence may be ascertained by the numerous and irregular tunnels which it forms in the sand, like miniature representations of those of the mole, only less rectilinear. These little tubular edifices are formed by the animal when in pursuit of a recluse prey, and are occasionally interrupted by his ascent towards the surface of the water. In these excursions his motion is extremely rapid, and appearing but for a moment, he is readily mistaken for a Dytiscus or Hydrophilus, which have a similar habit of occasionally visiting the surface of the water; but for the purpose of respiration. I was at first deceived by this similarity of movement, until by more attentive observation, induced by the rapidity with which it penetrated the compact sand and by its not remaining at the surface of the water a sufficient time to inhale a supply of air, or to collect a globule of it for gradual consumption, it was evident that it was an animal of perfectly distinct habits and organization from those of simple stigmata.

When placed in a vessel of water, it was observable that the oval appendices attached near the inner base of the anterior pairs of feet, assist in the process of respiration by propelling the water to the natatory feet, by which it was again propelled backwards; this constant stream carries with it the more minute animals usually abundant in sea water, which in passing are arrested by the plumose antennæ by the palpi and anterior feet, and are conveyed to the mouth for food.

Lepidactylis is related to the Gammarii by the accessory seta of the intermediate antennæ, but is generically distinct by the form of the four anterior pairs of feet, and that of the antennæ, which combined have furnished the essential characters for this genus.

Genus AMPITHOE. *Leach.*

Body of thirteen segments; *antennæ superiores* as long or longer than the inferiores, four-jointed, seta of the penultimate joint obsolete, *inferiores* five-jointed; *feet* fourteen, the two anterior pairs monodactyle, subequal; *hands* equal, oval; third and fourth pairs smallest; *tail* destitute of fasciculated spines, armed with bifid styles at tip.

SPECIES.

1. A. *serrata**. *Antennæ* equal, short, stout; *eyes* large, approximated, suboval; eighth, ninth, and tenth segments of the body serrated.

Inhabits Egg-harbour.

Cabinet of the Academy.

Clypeus acute; *antennæ* nearly equal, short, stout, attaining the base of the sixth segment of the body; *eyes* large, black, oval, placed at the outer base of the superior antennæ, and approximated above; *hands* with about three equidistant, prominent, spinose teeth on the inferior edge or palm, the nail or thumb curved, acute, and attaining the third tooth; eighth, ninth and tenth segments of the body serrated, the last more conspicuously so.

Length two fifths of an inch.

Remarkable by its large eyes, short, stout antennæ, and serrated appearance of the hind part of the back, occasioned by the elevation of the tip of each of those segments above the base of the succeeding one.

2. A. *dentata**. Posterior edge of the dilated thighs strongly serrated; *eyes* distant above; *clypeus* obtuse.

Inhabits South Carolina.

Cabinet of the Academy.

Antennæ moderate, not remarkably robust; *clypeus* not projecting beyond the frontal curve; *eyes* small, subtriangular, distant above; *hand* truncate at tip, destitute of prominent teeth, but furnished with a few rigid hairs, nail closing on the tip and not on the inferior edge; *feet*, posterior edge of the dilated thighs conspicuously serrated with from eight to twelve teeth; terminal segments of the body not remarkably serrated.

Length nearly three tenths of an inch.

A very common inhabitant of the fresh water marshes of South Carolina.

3. A. *punctata**. *Antennæ* elongated, inferiores longer; *hands* oval, not dentated; *body* with numerous black points.

Inhabits Great Egg-harbour.

Cabinet of the Academy.

Eyes ovate, acute and distant above; *clypeus* not projecting into an angle; *antennæ* elongated, superiores two thirds as long as the inferiores, inferiores nearly equal to the body, attenuated; *hands* not dentated, equal, oval, not larger than the carpus; *body* and *antennæ* above, sprinkled with numerous black points, fasciated on the abdominal segments; *feet*, posterior pair not serrated on the hind edge of the dilated thighs, but armed with three or four short spines.

Length rather more than three tenths of an inch.

Perfectly distinct from the preceding species by the more elongated and less robust antennæ. I obtained it several years ago at Great Egg-harbour, where it is not uncommon.

Genus TALITRUS. *Latr.*

Body composed of thirteen segments exclusive of the head; antennæ superiores shorter than the peduncle of the inferiores; feet fourteen; tail armed with several bifid spines at tip.

SPECIES.

1. T. *longicornis*[*]. *Inferior antennæ* with about thirty articulations in the terminal joint; *hand* oval, *palm* sinuated.

Inhabits the seabeach of New-Jersey.

Cabinet of the Academy.

Eyes oval;[†] *superior antennæ* not extending beyond the second joint of the peduncle of the inferior ones; *inferior antennæ* as long as the body, with the third joint of the peduncle rugose above and beneath, terminal joint composed of about thirty articulations; *first pair of feet* filiform, inner tip of the antipenultimate joint dilated into a compressed, accessory tubercle at the inner tip, penultimate joint dilated and rounded at the inner tip for the reception of the nail; *hands* of the second pair of feet dilated, oval, *palm* elevated in the middle into a large rounded tooth, which touches the middle of the thumb when at rest, leaving an interval on each side, an elevated obtuse angle at the tip of the palm, on the inner side of which the thumb rests when closed, lower edge of the hand rather longer than the palm.

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[*] Unless we carefully examine the eyes we are apt to be deceived as to their form, being sometimes but partially coloured in the dried specimen.

Female with the second pair of feet simple, compressed, destitute of hair or short bristles, and unarmed with a nail, terminal joint of the antennæ twenty-eight to thirty articulate.

Length seven tenths, breadth one fifths of an inch.

The manners and habits of the animals of this genus are similar; they do not inhabit the waters, but are found in considerable numbers upon sandy beaches of the sea, and are well known to every observer by the name of *sand flea;* they leap about with great agility, feed upon and conceal themselves under the rejectamenta of the sea, and for repose and security dig a hole in the sand, to which they skip at the approach of danger; they furnish an excellent food for the shore birds, which may be seen constantly running about in pursuit of them. The young males of this species have the antennæ not longer than the females, but the number of articulations is not diminished. Colour in the dried specimen brownish. The *longicornis* differs in some of its characters from the genus *Talitrus* as defined by Dr. Leach, particularly in the form of the two anterior pairs of feet, which approximate it to *Orchestia.*

2. T. *grillus*. *Inferior antennæ* with about twenty-five articulations in the terminal joint; *hand* oval, *palm* parallel with the thumb.

Talitrus grillus. Pedibus decem; anticis apice incrassatis, chelatis. *Latr. Hist. Nat. Crust. et Ins.* from *Bosc.*

Inhabits sandy beaches.

Cabinet of the Academy.

Eyes suborbicular or a little angulated; *superior antennæ* hardly exceeding the second peduncular joint of the inferior ones; *inferior antennæ* much shorter than the body, a little hairy but not rugose upon the third peduncular joint, terminal joint composed of about twenty-five articulations; *anterior pair* of feet with a prominent obtuse tubercle on the antipenultimate joint, penultimate joint dilated into an obtuse tubercle at the inner tip to receive the thumb; *hand* of the second pair of feet oval, dilated, *palm* oblique, unarmed, convex so as to receive the thumb without an interval, as long as the lower edge of the hand.

Female, articulations in the terminal joint of the antennæ the same as in the male, the second pair of feet are like those of the female of the preceding species.

Length rather more than half an inch.

Found in great abundance on the sandy beaches; when alarmed will sieze a portion of its food and skip with it towards its hole in the sand; it will not voluntarily venture into the water. I have considered this as the *T. grillus* of Bosc, notwithstanding the characters which he refers to that species, "dix pattes, le deux premier terminées par une main oval a crochet simple." I do not know of any animal that will correspond with these characters, the present one certainly does not; but as he further observes that, "cette espèce se trouve en grande quantité sur les côtes de l'Amérique septentrionale," and that the posterior antennæ are half as long as the body, I conclude that he has certainly been mistaken in the number of the feet of his specimen, and has considered the anterior pair as palpi when describing this animal. It is smaller and more slender than the preceding, and becomes red when dried. This species has the same relation to the genus Talitrus as defined by Dr. Leach, that the preceding one has.

Genus PODOCERUS. *Leach.*

Antennæ pediform, inferiors longer, stouter, and with the terminal joint inarticulate or very obscurely articulated; two anterior pairs of feet monodactyle, *hands* dilated, that of the second pair of feet larger, *palm* unarmed with teeth.

SPECIES.

P. *cylindricus**. *Hands* of the second pair somewhat cylindrical; *eyes* small, not prominent.

Inhabits Egg-harbour.

Cabinet of the Academy.

Eyes small; *front* acute; *superior antennæ* attaining the tip of the third joint of the inferiores, *inferior antennæ* much thickened, hairy, the terminal joint shorter than the preceding one; *hand* of the second pair, not larger than the carpus, *palm* longitudinal, rectilinear, *thumb* much shorter than the hand; third, fourth, and fifth pairs of feet short, much compressed, nail as long as the preceding joint, which is suboval and narrower than the one before it; sixth and seventh pairs reflected, and of the usual cylindrical, elongated form.

Length less than three twentieths of an inch.

This is one of the many species of this class of animals which may be found inhabiting marine plants, Fucus, &c., and also Zoophytes, devouring the fabricators of the latter and seeking a fugitive prey amongst the leaves and branches of the former.

Genus UNCIOLA*.

Essential Character.

Antennæ subpediform, superiores with an articulated seta at the base of the fourth joint; *anterior feet* monodactyle; second pair with adactyle compressed hands; *coxæ* not dilated.

Natural Character.

HEAD deeply emarginate beneath the eyes to receive a segment of the base of the lower antennæ (ear?), and projecting into an acute angle between the bases of the upper antennæ; *eyes* hardly prominent, placed on a somewhat advanced portion of the head, between the bases of the upper and lower antennæ; *antennæ* robust, terminal joint of the superiores rather longer than the preceding one, furnished at base with an articulated seta, inferiores rather shorter, thicker, terminal joint shorter than the preceding one; THORAX composed of seven segments each furnished with feet, of which the first pair are largest, *hand* dilated, monodactyle, second pair with a dilated, compressed, subequal carpus and hand, the latter simple, with two minute hooks at tip, posterior pair longest; *coxæ* simple or not remarkably dilated; ABDOMEN of three segments; *natatory feet* with the filaments subequal; *tail* of three segments, the first and second bearing each a pair of bifid styles, terminal one suborbicular, with a pair of simple, depressed styles, concealed by the others.

SPECIES.

M. *irrorata**. *Eyes* hemispherical; *hands* of the anterior feet with a longitudinal palm, and prominent tooth, those of the second pair compressed, ciliated.

Inhabits Eggharbour.

Cabinet of the Academy.

Accessory seta of the superior antennæ attaining the fifth articulation of the terminal joint; *eyes* conspicuous, rounded; *palm* of the anterior feet a little convex in the middle, a large obtuse tooth at base; nail attaining the carpus, which terminates so as to appear like a second tooth of the hand; second pair of feet ciliated, with a subtriangular hand, segments of the abdomen mucronate each side behind; *colour* when recent, pale with very numerous red points.

Length three tenths of an inch.

Not being able to refer this animal to any existing genus, I was induced to frame the present genus for its reception. It approaches *Gammarus* by having the accessory seta to the superior antennæ, but is excluded from that genus, and its congeneers, such as Talitrus, Dexamine, Leucothöe, &c., by the absence of the enlarged lamellated coxæ, which are so conspicuous in those genera. To the genus *Pherusa* it seems to approach by the form of the second pair of feet, but Dr. Leach observes that there is no seta to the antennæ of that genus. By the characters drawn from the simple coxæ, the thick, stout antennæ, emarginate lateral angles of the head, position of the eyes, and in fact from the general habit of the body, it seems to arrange naturally with Podocerus, Jassa, Cerapus, Atylus, &c.; from all of which it is sufficiently distinguished by the form of the four anterior feet. It is not uncommon on the branches of Fucus, Sertularia, &c. in the estuaries of Newjersey.

ORDER IV. LÆMODIPODA. *Latr.*

Head united to the first segment of the thorax; *eyes* two; *stemmata* two; *maxillæ* four, placed in a transverse line, labiform; *branchia* vesicular, at the base of the feet, subcaudal none.

Genus CAPRELLA. *Lam.*

Body linear. *Antennæ* four, the upper ones with the last segment as long as the three others and articulated, lower ones shorter; *anterior pair of feet* appearing to arise from the head; *branchia* globular or oval, substituted for the third and fourth pairs of feet; *anus* with two little appendices.

SPECIES.

1. C. *geometrica**. *Body* above glabrous; *head* with a short acute spine before; *hand* of the second pair of feet with one acute and one very obtuse tooth.

Inhabits salt-water bays; common.

Cabinet of the Academy.

Head obtuse before, beneath gibbous, anterior segments of the body gibbous beneath, subcylindrical, three last segments shorter, convex above, terminal one smallest, and truncate at tip; second pair of feet with dilated, oval, compressed hands, armed with teeth, one of which is near the base, linear and almost parallel with the palm, the other large, obtuse, little elevated, placed near the base of the claw; *thumb* curved, suddenly attenuated within at tip, where it closes on the posterior tooth; *branchia* short, oval; three posterior pairs of feet armed with curved, acute claws, nearly as long as the preceding joint; terminal pair longest.

Length three tenths of an inch.

Found on Fuci, &c.; motion moderate, walks like the larvæ of the Geometrica, and, like many of them, attaches itself when at rest in an oblique position by means of the three posterior pairs of feet. When recent the eyes are red; antennæ and feet annulate with reddish-brown, these annuli resemble spots of short opposite lines. *Body* with a few scattering reddish-brown spots.

2. *equilibra**. *Body*, first and second segments equal to one half of the whole length; *feet*, second pair placed in the middle of the body.

Inhabits South Carolina.

Cabinet of the Academy.

Head rather small; *clypeus* rectangular, not projecting into an acute spine; *antennæ*, superiores attaining the tip of the third thoracic segment, inferiores not attaining the tip of the second joint of the superiores, and ciliate beneath; *body*, first and second segments, subequal, cylindric, the latter rather longer, and one spined before the insertion of the feet, and a little dilated at base, each more than thrice the length of the head, and together forming a moiety of the total length, third, fourth and fifth segments equal, each about half as long as the preceding one, sixth and seventh segments much smaller, subequal; *feet*, anteriores small, hand toothless, triangular-ovate, and with the carpus forming an oval mass, nail closing without interval, second pair very large, conspicuous, placed near the middle of the body, hand oblong-oval, palm rectilinear, bidentate, teeth nearly perpendicular, placed one before the middle of the palm, the other nearer the base, a third smaller tooth sometimes intervenes, thumb much curved, closing with a wide interval, the tip attaining the tip of the posterior tooth, and concealing with its base the anterior one.

Length about one inch.

A large species, remarkable for the size of the second pair of feet and their being placed nearly equidistant from the extremities of the body; I found them common in the bay of Charleston, particularly at Sullivan's island, on the two species of Gorgonia so common in the salt water creeks of our southern coast.

Genus CYAMUS. *Latr.*

Body suboval, segments transverse, anterior one confounded with the head, *feet* ten, robust, armed with a strong nail, third and fourth pairs spurious; *antennæ* four, superiores longer, of four articulations, of which the last is entire, *eyes* two; *stemmata* two.

SPECIES.

C. *abbreviatus**. *Hands* of the second pair with the palm two toothed; *branchia* oblong oval.

Inhabits on the Balæna ——.

Cabinet of the Academy.

Body ovate, narrowed towards each end, *anterior feet* attenuated towards the base, hand smallest, *second pair* of feet with the hand much dilated, larger than the others, palm armed with two large, obtuse, nearly equal teeth, one placed near the base and the other near the tip, thumb as long as the palm; *branchia* oblong oval, rather more than half as long as the feet, placed upon the breast; *anus* simple.

Length less than one tenth of an inch.

This description is taken from several specimens, which were presented to the Academy by Mr. Reuben Haines, and which were procured by him from the Balæna ——.

It appears to differ from the C. *Ceti* more especially in being much smaller and having the branchia much shorter and more dilated. Doctor Leach has substituted for the name of this genus, that of *Larunda*, in consequence of the term Cyamus having been applied by Mr. Salisbury to a genus of plants.

ORDER V. ISOPODA. *Latr.*

Head distinct from the thorax, simple; *eyes* sessile, granular; *mandibles* destitute of palpi; *maxillæ* three pairs, exterior ones labiform, with two palpi united at base; *branchia* subcaudal.

Genus CYMOTHOA. *Fabr.*

Abdomen and *tail* composed of six segments, narrower than the trunk, the ultimate one larger, and furnished on each side with two compressed, pedunculated scales; *feet* similar, with very robust, entire nails, coxæ large and conspicuous, resembling an accessory lateral articulation of the thoracic segments.

SPECIES.

1. C. *ovalis**. *Body* oval, *eyes* concealed, *head* attenuated and rounded before; *tail* terminal segment as long as the five preceding ones conjunctly, rounded at tip.

Inhabits the mouths of Percæ, &c.

Cabinet of the Academy.

Body glabrous, nearly oval; first segment longest, fourth and fifth broadest, those of the abdomen and two first of the tail nearly equal, gradually narrower and rounded with the curve of the body, ultimate segment of the tail rather narrower than the preceding one and as long as the four preceding ones conjunctly, rounded at tip and entire; *styles* not surpassing the line of the tip, equal, hardly longer than the peduncle, the inner one oval; *feet*, fourth, fifth, and sixth pairs largest, then the seventh, the anterior ones gradually smaller to the first pair, which are smallest.

Length one inch, breadth rather more than half an inch.

This species is often found attached within the mouths of salt water fish in our markets, more particularly, I believe, in those of the Perch (*Perca Americana*†, Bloch) and Black-fish (*Labrus Americanus*‡, Bloch), and rarely in that of the Rock (*Perca Sexatilis*[†], Bloch). I have not access to any descriptions of C. *Gaudeloupensis* and *Americana* that can be considered as specific, so that it is possible I have here named them erroneously. if this should prove to be the case, I will gladly embrace the first opportunity to reject the false name and restore the true one, that first given.

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† Described subsequently by Dr. Mitchill under the name of *Bodianus rufus.*

‡ Described subsequently by Dr. Mitchill under the name of *L. tautoga.*

Nicholson in his Essai sur l'Hist. Nat. de St. Domingo, p. 343, pl. 7, fig. 2, gives an account and figures of a species of Cymothoa much resembling this, under the name of *Pou de Sarde*, *Pediculus marinus*. He found it in the branchia of a "Sarde."

2. C. *prægustator*. *Body* elongated; *eyes* conspicuous; *head* not attenuated, much longer than broad; *tail*, terminal segment as long as the seven preceding ones conjunctly.

Inhabits mouth of *Clupea Tyrannus*[‡] of Mr. Latrobe. *Oniscus prægustator*. Mr. B. H. Latrobe, Trans. Amer. Philos. Soc. vol. v. p. 77, plate 1.

Cabinet of the Academy.

Body elongated, gradually attenuated before, from the sixth segment; *head* narrower than the first segment, elongated, transversely impressed near the tip, tip not narrowed; *eyes* conspicuous, oval, composed of punctures instead of granules; *antennæ* subequal, hardly attaining the middle of the eyes; *first*, *second*, *third*, and *fourth segments* nearly equal in length, the first rather longer, *fifth*, *sixth* and *seventh* shorter, the latter very much lunated to receive the abdomen; *abdomen* and *tail*

[†] Described subsequently by Dr. Mitchill under the name of *P. Mitchilli.*

[‡] Described subsequently by Dr. Mitchill under the name of *C. menhaden.*

attenuated towards the base, terminal segment of the latter large, membranaceous, nearly as long as the seven preceding ones conjunctly, dilated at the base and gradually attenuated towards a point at tip, with a perceptible longitudinal line on the middle; *lateral styles* membranaceous, almost filiform, longer than the peduncles and much shorter than the terminal segment of the tail; *feet* gradually longer to the seventh pair, which are much longer than the others.

Length nearly two inches.

Belongs to the genus *Æga* of Dr. Leach.

It seems probable that this species resembles the *Gaudeloupensis*, but is larger; it is very commonly found in the mouths of the *mossbankers*, (C. *tyrannus*) as above mentioned; the body is generally more or less contorted, in compliance with the form of the part of the mouth to which it was attached. An interesting account of this species is given by Mr. Latrobe under the name which I have, of course, adopted; the lateral lamellæ of the tail, which he supposed to be single, are in reality bifid as in the other species of this genus. I had an opportunity to examine a number of these fish, and of them, many were infested with this animal, but by no means every one, as has been supposed. The fishermen say the *Fish-louse* is necessary to the life of the fish, and as a proof of it, they observe that if the *louse* be taken from him the fish will die, although thrown into the water; but it is probable that the death of the fish is not owing to the removal of the parasite, but its to being withheld too long from the water, as it is well known that this fish lives but a very short time when taken from the water.

3. C. *impressa**. *Body* oblong; *head* attenuated, terminating acutely between the bases of the antennæ; *tail* with the terminal segment widely emarginate at tip and as long as the five preceding segments conjunctly.

Inhabits ——.

Cabinet of the Academy.

Body oblong; first, second, third and fourth segments contracting by desiccation, their posterior margins remaining elevated and glabrous in consequence of the more crustaceous consistence of those parts; seventh segment short, very much lunated to receive the abdominal segments, which with the two first of the tail are so approximated, as to appear on each side like lines; terminal segment shorter, and more depressed in the middle so as to appear almost bilobated, tip widely emarginated, not longer than the five preceding segments conjunctly; *head* attenuated to the tip, which is acute between the bases of the superior antennæ, which are very robust and nearly attain the anterior segment of the body; *eyes* conspicuous, granulated, marginal, oval; *feet* gradually longer to the fifth pair, which are longest, sixth and seventh pairs equal to the fourth.

Length one inch.

This specimen was presented to me by Mr. Titian Peale, who remarks that it was taken at Cape-may, New-jersey. Can this be synonymous with C. ichtyola of Mr. Latreille?

4. C. *lanceolata**. *Body* oblong-oval; *head* broader than long; *tail* dilated-lanceolate, carinate, equal to the six preceding segments conjunctly.

Inhabits ——.

Cabinet of the Academy.

Body, the transverse less than half of the longitudinal diameter; segments narrower before and rounded, acute behind; edge not thickened; *antennæ* not robust; *abdomen*, segments suddenly narrower than the thoracic segments, subequal, the posterior ones gradually narrower, *terminal segment* dilated, lanceolate, a transverse impressed line at base, longitudinally carinated, carina obsolete towards the base, inner terminal joint of the lateral appendices triangular, outer one linear somewhat obliquely truncated at tip.

Length three fourths of an inch.

Found cast on the beach of Cumberland Island, Georgia.

5. C. *oculata**. *Body* elongate-oval; *head* trilobate behind, middle lobe smallest; *abdomen*, segments not shorter than the terminal thoracic ones; *tail*, terminal segment shorter than the four preceding segments conjunctly.

Inhabits the Sheepshead.

Cabinet of the Academy.

Body, transverse less than one third of the longitudinal diameter, lateral line forming a perfectly regular uninterrupted curve, segments gradually narrower to the base of the terminal segment, those of the abdomen and tail not shorter than the terminal thoracic ones; *colour* whitish with very numerous brown points; *head* broader than long, regularly rounded before, edge not thickened beneath, trilobate behind, middle lobe rather smallest; *eyes* large, conspicuous, fascetts regularly hexagonal; *tail*, terminal segment hardly broader than the preceding, depressed, rounded at tip, not carinated, edge ciliate, nearly equal to the length of the four preceding joints conjunctly, inner lamella of the latteral appendices triangular, hind edge but little oblique, ciliated, and mucronate at the outer tip, outer lamella oblong-oval, ciliated on the inner edge and two-spined at tip.

Length half an inch.

Taken in St. John's river, Florida, on the Sheepshead (*Sciæna ovicephalus*, Bloch.)† Belongs to the genus Ægga of Dr. Leach.

6. C. *immersa**. *Head* subquadrate; *thorax,* first segment profoundly emarginate for the reception of the head.

Inhabits ——.

Museum of South Carolina, and Richmond museum.

Head transversely subquadrate, somewhat narrowed to the tip, which is truncated; *body*, *anterior segment* very large, profoundly emarginate for the insertion of the head, the lateral processes rounded at tip and nearly attaining the transverse line of the clypeus, with a considerable interval between the tip and the anterior angle of the head; *third* and *fourth segments* longer behind, above; *fifth segment* widest; *feet,* large joint of the fourth pair extended behind into a spine, that of the three posterior pairs obtusely produced behind, nails rather small; *abdomen* abruptly much narrower than the thorax; *tail,* terminal segment large, membranaceous towards the tip, lateral appendices very short.

Length nearly one inch and three fourths.

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† This well known species has recently been described by Dr. S. L. Mitchill under the name of *S. ovis.*

The specimens above referred to are the only ones which have occurred, that of the museum of South Carolina was found by Mr. L'Hermenier at Gaudeloupe, that of the Richmond museum, I was informed, was taken on the coast of the United States.

Genus SPHÆROMA. *Latr.*

Body contractile into a sphere; *tail* entire; *lateral styles* foliaceous, bifid, lacinæ equal; *head* extended behind, on each side, into oculiferous lobes; *nails* bifid.

SPECIES.

S. *quadridentata**. *Body* oval; *tail*, terminal segment semioval, equal, *external lateral lamella* four-toothed.

Inhabits coast of Georgia and of East Florida.

Cabinet of the Academy.

Body oval, punctured; *tail*, terminal joint equal to the five preceding segments conjunctly, semioval, truncate at base and rounded at tip, surface equal, punctured, convex at base and concave before the tip, *lateral lamellæ*, interior one oblong-oval, acute, entire, carinate at base over the insertion of the exterior one, exterior lamella serrate on the outer edge with about four teeth, of which the anterior one is placed rather before the middle, smallest, minute, obsolete or wanting, inner edge rectilinear, ciliated; *colour* brownish or horn colour, when recent, usually varied with large whitish or rosaceous spots and with numerous minute brown points; incisures usually pale yellow; eyes and nails black; exterior lateral lamella immaculate.

Length of the female nine twentieths of an inch, male much smaller.

Varies very much in its colours, is of a plain brownish horn colour, rarely ferruginous, very often marked with two large patches of whitish or rosaceous, one of which is placed on the anterior disk and the other on the base of the tail, connected by a whitish dorsal line; sometimes we have a dorsal line only, extending from the head to the tail. I found these animals very numerous on the beach of St. Catherine's island, Georgia, concealing themselves under the raised bark, and in the deserted holes of the Teredo, &c., of such dead trees as are periodically immersed. They always swim on their backs.

(To be continued.)

continued p. 482

A case of unusual arrangement in the ascending Cava and in the external Jugular Veins of the Human Subject. By William E. Horner, M. D. Read August 18, 1818.

While prosecuting a course of dissections in the year 1813, the subject of the present paper accidentally fell into my hands. After injecting its blood vessels with the view of making a dried preparation, I was much surprized to find, in the course of the dissection, that an important part of its vascular system deviated in a very singular manner from what is commonly observed. Having submitted the preparation to the examination of Dr. Wistar, late professor of anatomy, the interest he took in it induced me to present it to him, and it is now an article in the Anatomical Museum, lately given by his widow to the university of Pennsylvania.

The peculiarities of the preparation are the following: The ascending vena cava, instead of receiving the hepatic veins and afterwards entering into the inferior part of the right auricle of the heart, takes its course on the right side of the spine, mounts up high into the thorax, forms an arch over the root of the right lung, and joins the trunk formed by the right and left subclavian and jugular veins. The trunk formed by these several unions, then enters the right auricle of the heart at the usual place of the descending cava. See Fig. 1, Nos. 3, 4, 5, 6.

This arrangement gives the preparation a very curious appearance when viewed anteriorly, see Fig. 2, Nos. 3, 4; for instead of the single arch formed by the aorta as usual, we find a double arch; one, the trunk of the arterial system and carrying the blood from the heart, the other the common trunk of the venous system and bringing the blood to the heart.

There is no vena azygos for receiving all the intercostal veins of the right side and a part of those of the left, the office of this vein being supplied by the ascending cava, as seen in Fig. 1, No. 11. The hepatic veins empty into the inferior part of the right auricle, at the usual place of the ascending vena cava. The right hepatic vein passes in singly, the middle and left form a trunk. See Fig. 1, No. 8, and Fig. 2. No. 11.

The internal jugular veins have the usual course, the external deviate very much from it. The latter unite about the superior part of the sternum, making a fork, and into the middle of the fork passes the inferior thyroid vein, see Fig. 2, Nos. 8, 9. A common trunk is then

An account of the Crustacea of the United States. By Thomas Say. Read September 22, 1818.

(Concluded.)

Genus STENOSOMA. *Leach.*

Body sublinear; *tail* two or three jointed, ultimate joint destitute of lateral appendices, furnished beneath with two parallel laminæ, attached by their external margins and opening like valves; *antennæ*, exteriores elongated, interiores very short.

SPECIES

1. S. *irrorata**. *Body* oblong, third segment broadest, attenuated to the tip of the tail, which is three toothed, middle tooth longest.

Inhabits Egg-harbour; common.

Cabinet of the Academy.

Body oblong, attenuated before and behind from the third segment, second, third and fourth segments longest, nearly equal; *tail* with the first and second segments equal, short, third equal on each side to the preceding, but obsolete above, terminal segment as long as the six preceding ones conjunctly, longitudinally somewhat elevated on the disk, tip with two crenæ forming obtuse lateral teeth and a more prominent middle one; *antennæ* half as long as the body, interior ones very short, attaining the tip of the third joint of the exteriores; *eyes* somewhat hemispherical, placed on the middle of the lateral margin.

Length, female rather more than one half of an inch.

Very common in bays and inlets of the coast on fuci, &c.

2 S. *filiformis**. *Body* very much elongated, linear; *segments* distant emarginate each side; *antennæ*, exteriores subclavate; *tail* cuneiform at tip.

Inhabits Egg-harbour.

Cabinet of the Academy.

Body appearing of only seven segments exclusive of the ultimate one, of equal breadth throughout, sometimes covered with very short filaments; segments emarginate, each side, and separated by wide insisures; ultimate segment nearly as long as the four preceding ones, contracted in the middle of the margin, and suddenly attenuated near the tip into an obtusely cuneiform termination; *head* elevated on the disk into a tubercle which is sometimes double; *eyes* hemispherical, very prominent; *antennæ* robust, intermediate ones very short, exterior ones more than half as long as the body, terminal joint perceptibly somewhat thicker than the preceding.

Length two fifths of an inch.

Found in company with the preceding species, and may be readily known by its linear form.

Genus IDOTEA. *Leach.*

Body oval, *caudal* segments two or three, ultimate one largest, destitute of lateral appendices, furnished beneath with two laminæ, which are elongated, parallel, attached by their external margins and opening like valves; *antennæ* subequal, short.

SPECIES.

1. I. *cœca**. *Body* ovate, attenuated behind to an acute point; *antennæ* equal, approximated at base, without

interval; three anterior pairs of feet monodactyle; *eyes* inconspicuous.

Inhabits coast of the United States.

Cabinet of the Academy.

Body broadest at the third segment; three abdominal segments narrowest; *head* quadrate, immersed, depressed, a profound fissure on the lateral edge; *antennæ* as long as the head, equal; *tail*, first segment short, second somewhat trilobated, middle lobe interrupting the preceding segment above, *ultimate segment* half as long as the body, attenuated to an acute point, convex and subcarinate, above, margin near the tip suddenly depressed; *feet* gradually longer to the posterior ones which are longest, three anterior pairs robust, monodactyle, remaining ones simple, unarmed, furnished with rigid hair or setæ; *nails* of the hind pairs rectilinear, tipped with setæ.

Length nearly three tenths of an inch; one specimen was upwards of two fifths.

Found in the small pools of sea-water, left by the refluent tide. Colour when recent, whitish, varied with brown dots, which are sometimes nearly united into bands; *eyes* milk-white; head with a transverse black band, which is angulated behind, a large milk white spot on the back and a smaller triangular one before the tail, both sometimes obsolete; swims on its back, and conceals itself in the sand; found as far south as Florida.

2. I. *triloba**. *Body* oval, somewhat oblong; *segments* with the lateral processes convex; *intermediate antennæ* short; *feet* armed with strong curved nails.

Inhabits Egg-harbour.

Cabinet of the Academy.

Body composed of seven segments, *tail* of two; *segments* of the body with the lateral processes, very convex, lobated, first segment shortest; *head* transverse, oval, unequal on the disk, an impressed transverse line behind, sinuate anterior edge, and impressed with a longitudinal abreviated line; *antennæ* filiform, rather distant, intermediate ones short, exteriores with the terminal joint rather more than half as long as the preceding one; *eyes* very prominent, hemispherical, placed in the middle of the lateral margin; *tail* narrower than the body, first segment trilobated, middle lobe much the largest, convex, ultimate segment rather longer than the three preceding ones conjunctly, subtriangular, very convex on the disk, margin near the base depressed and channelled, tip depressed, acute; *feet* rather long, armed with curved, acute nails.

Length one fourth of an inch.

Found with the preceding species, is remarkable by the lobate appearance of the lateral processes. Of the I. *triloba* a new genus might be formed with the greatest propriety, as the description will evince.

Genus ASELLUS. *Geoff.*

Tail one large segment; *caudal appendices* exserted, bifid, inserted near the middle of the hind margin; *exterior branchial valves* rounded, attached by the base; *tarsi* simple; *eyes* minute; *antennæ* four, setaceous, the last segment many-jointed.

SPECIES.

1. A. *communis**. *Body* oblong oval, furnished with short rigid hairs; *interior antennæ* equal to the peduncle of the exterior ones; *caudul appendices*, peduncle depressed.

Inhabits small streams of fresh water, under stones.

Cabinet of the Academy.

Body oblong-oval, a little narrowed before, segments transverse, subequal, indistinctly emarginate on the edges each side, hairy; hairs very short on the disk, longer on the edges and feet; third and fourth segments linear, the anterior ones a little curved forwards and the posterior ones backwards; *head* narrower than the first segment, and not longer; *superior antennæ* extending to the base of the tail; *inferior antennæ* equal to the peduncle of the superior ones; *eyes* obovate, oblique, prominent, black; *tail* as broad as the segments of the body, transverse-suborbicular, equal to the two last segments conjunctly, depressed, and a little prominent between the appendices; *appendices* as long as the tail, laciniæ subequal, peduncle dilated; *anterior feet* hardly longer, monodactyle, unarmed; *thumb* as long as the hand; *hand* oval; *carpus* triangular; *remaining feet* gradually longer to the hind pair, which is longest, first and second joints suboval, gibbous above, third joint triangular, extended over the base of the succeeding one and tipped with long hairs, fourth and fifth linear; *tarsi* half as long as the preceding joint, simple, acute.

Length one fourth of an inch, breadth less than one tenth.

A very common species in our fresh waters, particularly in rivulets under stones. It is frequently introduced with the Schuylkill water into Philadelphia. The female may be distinguished from the male by a valvular pectoral follicle in which the young are protected. In one of these I counted twenty-eight young ones.

2. A. *lineatus**. *Body* oblong; *interior antennæ* much shorter than the peduncle of the exteriores; *caudal appendices*, peduncle cylindrical.

Inhabits South Carolina.

Cabinet of the Academy.

Body oblong, not distinctly attenuated before; *segments* subequal, entire; *head* at base equal to the preceding segment, a sinus each side in the middle; *eyes* prominent, black; *antennæ*, exteriores as long as the body in one sex, in the other longer, interiores nearly attaining the tip of the second joint; *hands* with a prominent angle on the middle of the inferior edge, thumb closing on and surpassing the angle, shorter than the hand; *nails* somewhat bifid at tip; *terminal caudal segment* longitudinally subovate, styles elongated cylindrical, equal to the terminal segment of the body, laciniæ very unequal, inner one nearly thrice the length of the outer one, truncate at tip; *colour* pale brown with a double dorsal brown line, united at the tip of the tail, a brown line or two each side of the tail.

Length nearly one fourth of an inch.

This animal is not an uncommon inhabitant of the swamps in the forests of South Carolina. It might be referred to the genus *Janira* of Dr. Leach.

Genus PHILOSCIA. *Latr.*

Caudal styles four, simple, saliant, lateral ones biarticulate; *antennæ*, exteriores eight-jointed, interiores obsolete; *tail* abruptly narrower than the body.

SPECIES

1. P. *vittata**. Fuscous, glabrous, margin and two broad vittæ cinereous.

Inhabits the United States, common.

Cabinet of the Academy.

Head above transversely oval; *eyes* longitudinally oval, granulate; *antennæ* with minute distant hairs, ultimate joint tipped with a seta; *body*, first segment rather longer than the others, which are nearly equal; *tail*, segments subequal, terminal one rounded at tip, not longer than the preceding one, and attaining the tip of the first joint of the external styles, intermediate styles setaceous at tip, rather shorter than the external ones; *head*, *body*, and *tail* with the margin and two broad vittæ cinereous.

Length one-fifth of an inch.

Very common under stones, wood, &c. in moist situations.

2. P. *spinosa**. Brown, oblong-oval, with numerous spines above; *feet* armed with short setæ beneath.

Inhabits Georgia.

Cabinet of the Academy.

Body brown, elongate-oval, armed with numerous spine-like tubercles; sixth and seventh segments produced on each side behind, acute, the latter attaining the base of the fifth succeeding joint; *abdominal* and *caudal* *segments* somewhat glabrous, terminal segment surpassing the first joint of the lateral styles; *antennæ* rough and subspinose before, terminal joint glabrous, pale; *feet* beneath armed with short distant setæ.

Length nearly one-fifth of an inch.

Under stones, old wood, &c. in moist situations near Savannah, Georgia.

Genus ONISCUS.

Caudal styles four, lateral ones biarticulate, intermediate ones concealed by the terminal segment of the tail; *antennæ*, exteriores eight-jointed, interiores obsolete; *tail* not abruptly narrower than the body.

SPECIES.

O. *affinis**. *Head* and *anterior segments* of the body scabrous; *tail* glabrous, terminal segment attenuated, attaining the tip of the inferior styles, and the middle of the last joint of the exterior ones.

Inhabits North America; common.

Cabinet of the Academy.

Body dilated, oval, somewhat depressed, sides a little rounded, not rectilinear; *head* and *anterior segments* of the body scabrous, posterior segments gradually less so; *tail* glabrous; terminal segment, almost subulate, attaining the middle of the last joint of the exterior styles, and exactly equal to the interior ones; *colour* fuscous with a cinereous edge and submarginal line, which are united on the tail into a broad margin, disk with a few cinereous spots.

Length half an inch, breadth three tenths of an inch.

Inhabits damp places, under stones, decaying wood,

&c.; when thrown on its back, turns with difficulty; exceedingly like the *O. asellus*, which was some years since in great repute in some parts of Europe for its supposed virtues in the cure of pulmonary and other diseases, but which is rejected as worthless by the present pharmalogy; I consider ours as distinct on the authority of Mr. Latreille's description of the European species; he observes that "les appendices inferieures et intermédiaires de la queue dépassent la pièce supérieure et terminale du corps."

Genus PORCELLIO. *Latr.*

Caudal styles four, lateral ones biarticulate, intermediate ones concealed by the terminal segment of the tail; *antennæ*, exteriores seven-jointed, interiores obsolete; *tail* not abruptly narrower than the body.

SPECIES.

1. P. *spinicornis**. *Body* scabrous; *antennæ*, third joint with a mucronate carina above.

Inhabits North America, common.

Cabinet of the Academy.

Body scabrous with granules, black-brown, margin and submarginal lines cinereous, three dorsal lines of alternate yellowish subquadrate spots, of which the intermediate ones are smallest; *head*, *antennæ*, and *disk of the tail*, blackish, the latter with two or three small yellowish spots each side at base; *antennæ* with the third joint elevated above, and armed with an acute spine; *terminal joint of the tail* canaliculate, hardly surpassing the first joint of the exterior styles.

Length two-fifths of an inch.

A very common inmate of our houses, crawling up the walls in damp cellars, &c. It seems probable that it resembles the *P. scaber* of Europe, of which however we have no good description by which to judge.

2. P. *nigra**. Black, scabrous, immaculate; antennæ with the spine of the third joint hardly prominent.

Inhabits Pennsylvania.

Cabinet of the Academy.

Body black, immaculate, beneath whitish, granulæ numerous, elevated, very rough, segments of the tail margined behind with abbreviated, elevated lines, terminal segment acute, attaining the tip of the intermediate styles and the middle of the last joint of the others.

Length three-tenths of an inch.

This species differs from the preceding, by being unicoloured, smaller and much more rough.

Genus ARMADILLO. *Latr.*

Caudal styles four, lateral ones biarticulate, connivent with, and not longer than the terminal segment of the tail, second joint triangular; *antennæ*, exteriores seven-jointed, interiores obsolete; *body* capable of being rolled into a sphere.

SPECIES.

A. *pilularis**. Plumbeous, margin and submarginal line cinereous, three yellowish lines of spots on the disk.

Inhabits North America.

Cabinet of the Academy.

Body with very minute punctures, lateral margin, and submarginal line of spots, cinereous, three lines of large yellowish opposite spots on the disk, segments with the hind edges whitish.

Length half an inch.

This species comes so near to the description of *A. maculatus* that I should have considered it the same, had it not been remarked that the *maculatus* is twice the size of the *vulgaris*, the former must therefore be much larger than our species, which is about equal in size to the latter, as figured by Rœmer. It is very common in moist places, under stones, in decaying wood, &c.

ORDER V. BRANCHIOPODA. *Latr.*

SECTION I. PÆCILOPA. *Latr.*

Genus LIMULUS. *Fabr.*

Head confounded with the thorax; *antennæ* none; *mouth* inferior, simple and central, surrounded by the feet; *mandibles* and *feet* didactyle; *coxæ* supplying the place of maxillæ; *tail* elongated, attenuated.

SPECIES.

L. *Polyphemus.* *Thorax* seven-spined above; *abdomen* above three-spined; *tail* about twenty-five-spined above; *feet*, second joint of the four anterior pairs, with about five moveable spines.

Monoculus Polyphemus of Linne.
Limulus cyclops. Fabr. Syst.
Limulus polyphemus. Lam.
Polyphemus occidentalis. Latr.
Limulus Sowerbii. Leach. Zool. Miscel. vol. ii. pl. 84. *Young.*

Inhabits northern coast of the United States, very common.

Cabinet of the Academy, Peale's Museum.

Thorax sublunate, truncate at its junction with the abdomen, convex, margined on its outer and anterior edge, acute and elongated at the hind angles, seven subequal reflected spines on the disk, of which six are placed on two parallel, transverse lines, and transversely equidistant, posterior line on the edge of the truncature, lateral anterior ones bearing the eyes on their exterior side, seventh spine anterior and distant from the other, supporting two stemmata; *eyes* longitudinally oval; *feet*, second joint of the four anterior pairs, armed beneath with four or six moveable spines, of which two or three are approximated at tip, and two or three distant and placed longitudinally, second joint of the hind pair, with about two moveable spines and a much larger one at the inferior tip of the fourth joint; *abdomen* depressed, a longitudinal line of three, elevated, somewhat reflected spines, smaller than those of the thorax, anterior one placed at the base, intermediate one behind the middle, posterior one at tip over the insertion of the tail, lateral angles of the base elevated into a dilated, compressed, oblique spine, lateral edge with twelve alternately permanent and moveable spines, of which the latter are longer, hind angles elongated each side of the origin of the tail and acute; *tail* serrate above with from twenty to thirty spine-like teeth, which are unequal, inequidistant and shorter than one-fourth of the transverse diameter of the tail.

Length to the end of the tail, female nearly two feet, male about twenty inches.

The male differs from the female in being smaller, and in having the hand of the anterior pair of feet, dilated, spherical, monodactyle, the thumb inflected at base, so as to form a right angle with the hand, compressed and obtuse at tip. In the immature state, the spines of the disk of the thorax and abdomen are very acute and prominent, but become more obtuse as the animal advances in age, so that in the full grown subject they are obsolete, often noted only by a hardly elevated tubercle browner than the shell. They are found in vast numbers in Delaware bay, in the bays of the Newjersey coast, and probably much further north. They never attempt to swim, but always crawl slowly on the bottom, the feet always concealed beneath the shell. When cast ashore by the waves, if they fall on the back, they cannot recover their proper position. Many people feed their hogs upon them, and it is said that some hogs that roam at large in the districts where they abound, become acquainted with the fact of their inability to turn themselves when placed on the back, and when there happens to be a scarcity, with a provident sagacity, they turn as many as they can eat, or as are within their view, before they proceed to satisfy their hunger. This fact with respect to one hog, was related to me on good authority.

When irritated they elevate the tail, which is acute at tip, but perfectly harmless. The boatmen make use of the thorax for baling their boats.

For the reception of her eggs, the female digs a hole in the sand with her feet, of considerable width, and but little depth, usually between high and low water marks. During this season, and for a considerable time previous to the oviposit, she is accompanied by a male, who attaches himself by means of his monodactyle hands, to the posterior processes of her abdomen. The connection endures so long, that the tergum of the female at the two posterior spines, is very much worn, by friction with the anterior part of the thorax of the male, and the posterior processes are often almost worn through, by the pressure of his thumbs.

The *L. Sowerbii* figured by Dr. Leach, seems to be the young of this species, as the description and figure agrees perfectly with it.

Var. β. Abdomen five-spined on the disk, of which three are in a longitudinal line as in the species, and a smaller one on each side in a transverse line with the anterior spine and nearer to the elevated lateral angles. This animal, which I have for the present considered as a variety only, is an inhabitant of the southern states and Florida, where they abound in considerable numbers; how far they may be found to the north I know not, or whether they inhabit the same districts with the species, but I have not observed them on this side of the Chesapeake bay. Although in general appearance it is perfectly similar to L. Polyphemus, yet in consideration of the character here noted, I propose that it be separated as a distinct species under the name of *australis*.

Genus PANDARUS. *Leach*.

Abdomen at base covered by imbricate scales.

SPECIES.

P. *sinuatus**. Body dilated, thorax emarginate before, abdomen sinuate behind.

Inhabits dog fish, (Squalus Canis? Mitchill.)

Cabinet of the Academy.

Length one fifth of an inch.

Body longitudinally oblong-quadrate; *thorax* transverse-quadrate, somewhat narrowed before, emarginate between the antennæ, middle of the base rectilinear and fuscous, angles projected backward and rounded at tips; *antennæ* very short; *anterior feet* formed for suction, at tip oval or subreniform, and placed obliquely; *scales*, four subequal ones in a transverse line at the base of the abdomen, each transverse and rounded at tip, and two larger ones originating beneath the preceding, slightly dentate at tip and not concealing one half of the abdomen; *abdomen* quadrate, as wide as the thorax but rather longer, posterior edge with a central sinus and lateral one each side, posterior angles acute; *oviducts* filiform.

Very commonly occur in considerable numbers on this species of Squalus, attaching themselves more particularly about the bases of the fins. They are by no means so active as the *Caligus piscinus,* which also occurs in plenty on the *Cod-fish* of our coast.

Genus BINOCULUS. *Geoff.*

Body suboval; *thorax* large; *eyes* two; *abdomen* of three, or four transverse segments; *tail* setaceous at tip.

SPECIES.

B. *caudatus**. *Body* subovate; *thorax* semioval or parabolic, posterior edge retuse for the reception of the abdomen, no dorsal, or transverse anterior line; *antennæ* exteriores laterally and horizontally extended, more than half as long as the body, with short rigid hairs, interiores concealed; *feet* concealed, anterior pair near the base of the thorax and dilated at tip, posterior pair at the origin of the tail, extended obliquely, prominent, dilated, bisetous at tip; *abdomen*, basal segments very short, transverse, each side reflected, curvilinearly narrowed without interval, terminal segment longer, semiorbicular, narrower than the preceding ones and concealing the first caudal segment; *tail* half as long as the body, abruptly narrower than the preceding segment, segments three, basal one longitudinally quadrate, largest, second one transversely quadrate, narrower than the first in the female, elongated and attenuated in the male, third segment bifid and bisetous at the tip.

Length one fortieth of an inch, male smaller.

Cabinet of the Academy.

I have placed this parasite in Geoffroy's genus *Binoculus*, not in consequence of the particular definition of that genus, but from a general resemblance in the outline, and similarity in the number and proportion of the segments of the body, which it unquestionably bears, to the singular animal dicovered by that author, now the type of the genus.

In these two animals there are however striking dissimilarities, which it is unnecessary here to particularize, as those who are conversant with the generic characters as laid down by Mr. Latreille, will immediately perceive them by the above description.

This parasite was found in considerable numbers, on various parts of the body of the specimen of *Callianassa*, described on page 238 of this Journal. The two sexes of nine tenths of the specimens were in coitu, the male adhering to the tail of the opposite sex, so as to conceal by his body the two terminal segments. This adherence was so pertinacious, as to be permanently maintained after submersion in spirits of wine; a circumstance, which combined with the appearance of the living animals, was well calculated to deceive the ordinary observer into a belief of the unity of the two sexes so connected. Thus the thorax of the male appearing to the eye connected to the thorax of the female by a pedicel, would seem, unless minutely examined, to be no other than the abdominal portion of the same individual; nor would an ordinary magnifier exhibit the truth.

SECTION III. LOPHYROPA. *Latr.*

Genus CYTHERE.

Shell bivalve, concealing the head; eyes confluent; antennæ two, ciliated; feet eight.

SPECIES.

C. *bifasciata**. *Valves* ovate, viewed above and beneath, lateral view suboval, convex above, somewhat rectilinear beneath; a dorsal indentation behind the most elevated part; clothed with minute dense hairs; colour greenish-testaceous, tipped with black, the posterior spot emarginate above when the valves are closed, two black bands, the posterior one a little undulated and connected with the anterior one by a dilated, dorsal line, which terminates a little before the anterior band; *antennæ* as long as the valves, ciliæ obsolete; *feet* white.

Length one fortieth of an inch.

Var. *a. Valves* dusky green, banded and spotted with darker green, nearly as in the species.

In considerable numbers, in small shallow pools of fresh water. The specimens here described were found in Georgia and East Florida.

Genus DAPHNIA.

Shell bivalve; head distinct; antennæ generally four, ramose; feet eight or twelve; eye one.

SPECIES.

1. D. *angulata**. *Body* viewed laterally suboval, contracted before, gibbous above near the posterior edge, beneath ventricose in the middle; *back* subovate, acute behind and contracted before; *sides* striate with numerous, minute, parallel, oblique lines; *hind edge* of the body with a prominent angle in the middle, which is obtuse at tip, above the angle it is ciliated; *antennæ*, four filaments on the superior branch, and five on the inferior branch; *colour* white or red.

Length one tenth of an inch.

Cabinet of the Academy.

Very common in the stagnant marsh water of the forests in the southern states.

2. D. *rotundata**. *Body* viewed laterally ovate, narrowed before, rounded behind, and destitute of any prominent angle, and of gibbosity above; lateral oblique lines obsolete; *venter* deeply ciliated; *antennæ*, superiores three-branched, a small spine above at the insisures of the joints, inferiores five-branched; *colour* white.

Less than half as large as the preceding.

Cabinet of the Academy.

Found in the stagnant marsh water of the forests, in the southern states.

Genus CYCLOPS.

Body elongated and attenuated behind; thorax abbreviated; *eye* one; *antennæ* two to four, simple; *feet* six to ten, hairy; *tail* long, bifid.

SPECIES.

C. *noviculus**. *Body* oval, attenuated behind; *thorax* semioval, glabrous, rounded before, truncate behind, sanguineous, hind angles acute; *tail* and *feet* white, the former as long as the thorax, attenuated, terminal joint bifid, seta four as long as the tail, the outer ones shorter, two small equal spines at the base of each pair, and one subequal one on the exterior side of the bifid part of the tail, a little before the base of the seta; *anterior antennæ* two thirds the length of the body, spinose, white, extended each side horizontally, recurved, and more robust near the base, and attenuated to the tip.

Found in considerable numbers in stagnant fresh water of the southern states. Swim by jerks, being alternately at rest and in motion, the female carries her eggs in two follicles, which are attached one on each side, near the base of the tail, of the same colour as the thorax, and vastly large in proportion with it, being nearly two thirds the size. Eggs spherical, from twenty-five to thirty or more in each follicle, consisting each of a dark nucleus and paler border.

Observations on some of the Animals described in the Account of the Crustacea of the United States. By Thomas Say.

OCYPODE (*Sesarma*) *reticulatus.* It would be more correct to refer this species to the genus *Grapsus* by its oral characters, than by its habit to *Ocypode.*

GRAPSUS *cinereus.* Since publishing the description of a species which I referred to this name, p. 99, I have found a distinct species, which from its locality I judge to be the true *cinereus* of Bosc and Lat. It is very numerous, inhabiting the bay of Charleston, the southern coast generally, and East Florida as high as fifty or sixty miles up the river St. John. I have not met with it so far north as the coast of Newjersey. It is widely distinct from the species before mentioned, although the brief description which has been given of it by authors, will apply equally well to both. Mr. Latreille interrogatively refers to Sloane's Cancellus marinus minimus quadratus as synonymus with *cinereus;* but as that species, from the lateral thoracic curvature, general form of the body, and mode of life, is without a doubt intended for the species described page 99, under which I have quoted it, we must suppose that it is an anonymous species, and not the *cinereus*, nor yet the *minutus*, to which it next approaches. I therefore appropriate to it the name of *pelagicus*, significant of its mode of life. The *cinereus* differs from the *pelagicus* in many striking characters, in having the thorax quadrate, the lateral edge not being arquated, nor having a sinus near the anterior angles, and the three terminal joints of the feet are not ciliate with hair on the anterior edge as in *pelagicus*, and the carpus is destitute of a spine. It is further distinct from the latter, and approximated to *reticulatus* above mentioned, by the granulated cheeks and sides of the body, and the abruptly smaller, orbicular, terminal joint of the abdomen in the female, inserted into a profound sinus of the penultimate joint. These and other traits contribute to refer it to my indicated genus *Sesarma*. It is probable, this genus will comprehend the land species, of the present genus *Grapsus*.

OCYPODE *pugillator*. Although this species approaches nearest to the genus Uca of Dr. Leach, yet it is at the same time widely distinct from it. In a work now publishing, the *Nouv. Dict. d'Hist. Nat.* Mr. Latreille has revived a genus, which Buffon called GELASIMUS, to include this species, and its two kindred ones.

ASTACUS *affinis* and *Bartoni* vary somewhat in their armature, but the form of the rostrum in each species continues constant. The latter species has the hands differently proportioned, with respect to the thumb, and more or less muricated. They are extremely common in the pine-barren marshes of the southern states, and particularly in those of Georgia and Florida.

LUPA *hastata*. I have often had an opportunity of observing the feet of this species regenerating; one of the joints, I think the third, appeared first, the remainder of the foot was as it were doubled, and was gradually elongated until the tip of the foot was disengaged.

We found the *hastata* in the river St. John, Florida, as far as Fort Picolata, one hundred miles from the sea, where the water is potable.

Dr. Leach informs us, that the fishermen of England believe that the *Portunus depurator* insinuates its flattened hind foot into, and destroys the oyster; the same strange story is related of *L. hastata.* This story may have arisen from the accidental insertion of the foot into the oyster, for in this case the oyster would close his shell and detain the foot, and perish in this position. This supposition was suggested to me by seeing an *Ardea herodias* flying with a pendant leg, to the toe of which a *Venus mercenaria* was attached.

In the description of the parasitic worm, p. 67, the words " body silvery above and spotted with red," should be struck out, and substituted by *eyes two, black, oblong.* It stands thus in the MSS. and how the error has occurred I know not. It is most probably a *Fasciola.*

LUPA *pelagica* is not uncommon on the southern coast.

HIPPA *talpoida.* If Fabricius gave a false character to the *H. emeritus*, as Mr. Latreille supposes, in attributing to the terminal joint an ovate form, it is very possible that there is but one species of the genus.

STENOSOMA *irrorata.* The female is blackish, sometimes immaculate, usually margined with whitish, sometimes with large, white, marginal spots. The male is pale immaculate.

Length, male nine-tenths, female nearly seven-tenths of an inch.

The tail of *Idotea chelipes,* Latr. is described as tridentate, but the character " pedibus subchelatis," whence its name, is so remarkable, as to forbid the supposition of its being the same as this.

Appendix to the Account of the Crustacea of the United States. By Thomas Say. Read December 1.

The following species were discovered since the publication of their respective genera, in the preceding part of this work.

Genus LUPA.

For generic characters see p. 65.

L. *maculata**. Clypeus four-toothed; thorax reticulated, covered with minute granules; anterior feet three-spined on the third joint before; carpus two-spined; abdomen, second segment mucronate each side.

Inhabits coast of Georgia and Florida.

Cabinet of the Academy.

Thorax crowded with minute granules, distributed equally, and with the anterior and posterior feet above, chocolate brown with crowded, suborbicular, unequal, white spots, giving to the whole surface a reticulated appearance, lateral teeth ciliated; *clypeus* with four small teeth, of which the intermediate ones are rather larger and more distant, septum of the intermediate antennæ prominent, dentiform; anterior canthus of the eye obtusely dentiform above, and more prominently so beneath; *anterior feet*, third joint three-spined before, spines unequal, anterior ones largest, an obtuse spine or angle separated from the hind tip by an impressed line, which curves above to the middle of the tip, and thence towards the anterior edge; *carpus* with three elevated, or equal lines, of which two are abbreviated and the outer one terminated in a spine, inner edge with a spine, and two obsolete ones on the outer tip; *hands* with a strong spine at base and five elevated, granulated lines, one of which terminates in a short spine at the base of the thumb; *fingers* with impressed lines and incurved at tip; *pectus* white; *cheeks* pubescent; *abdomen*, second segment mucronate each side, third, fourth, fifth and sixth segments in the female, reddish yellow at base.

Length two and a half, breadth four inches, nearly, exclusive of the elongated spines.

Resembles *L. hastata*, but is at once distinguished from it by colour, by having four small teeth to the clypeus, a spine each side of the second abdominal segment, armed carpus and many other differences; from *L. pelagica*, to which it also approaches, it differs in colour, in having only three spines on the third joint and the anterior feet, &c. But it seems to be more closely allied to *L. reticulatus*, it however differs much from the figure given of that species.

The above description was taken from the dead subject. I have not seen a living specimen.

Genus CANCER.

For generic characters see p. 57.

SPECIES.

1. C. *limosa*.* Thorax equal, convex, with about three serrate teeth each side; clypeus with a fissure; fingers white.

Cabinet of the Academy.

Inhabits shores of the northern states.

Thorax transversely somewhat semicylindrical, granulated each side, three lateral serrate teeth granulated on their edges, and an anterior one hardly distinct from the posterior elevated supercanthus of the eye, *superior eye lid* with two obsolete fissures, anterior supercanthus destitute of a prominent angle; *clypeus* divided in the middle by a fissure, lateral segments regularly and botusely arcuated at the edge; *labrum* prominent, undulated; *cheeks* and *sides of the thorax* densely granulated, a conic tooth beneath the anterior tooth of the edge of the thorax; *anterior feet* equal, olivaceous-green, immaculate, beneath fulvous or yellowish; *carpus* with a prominent obtuse spine within, beneath which there is no angle; *hands* rounded above and beneath, fingers deflected, white or yellowish, obtusely and somewhat regularly dentated within, thumb often purplish above at base; *abdomen*, second segment of the male abruptly much narrower than the first and third, third much wider than the fourth, penultimate one with equal transverse diameters and not wider at tip than the terminal segment, which is widest near the middle in consequence of being much arcuated at base.

Length about one inch and one fifth, breadth one inch and a third.

Not uncommon in muddy places of our southern coast. It resembles C. *Panope*, but is sufficiently distinct by the more convex thorax, colour of the fingers, and form of the segments of the clypeus, which in *Panope* are slightly undulated; in *Panope* also the carpus has a projecting angle beneath the spine, which is wanting in this species; a striking difference is observable in the second abdominal segment, which is deeply emarginate at the posterior angles, and not narrower at base than the first segment.

2. C. *mercenaria**. *Thorax* subequal, about four lateral very obtuse teeth; *clypeus* with a fissure, lateral segments three-lobed; *fingers* black at tip.

Inhabits the southern states.

Cabinet of the Academy.

Body maculated when recent; *thorax* each side divided by four sinusses into four very obtuse teeth, which are rectilinear at tip and hardly prominent beyond the thoracic curve, cheeks and sides not distinctly granulated, and destitute of the conic tooth beneath the anterior thoracic one; *orbits* suborbicular, no distinct sinus at the posterior canthus, inferior lid entire and simply concave in the middle of the edge, a profound fissure in the anterior canthus; *clypeus* unequal, an indented fissure in the middle, the lateral segments somewhat three-lobed, anterior one most prominent; *labrum* not prominent in the middle; *pectus* of the male with a hispid fascicle on the second and third segments each side; *carpus* within dilated into a very obtuse, obliquely compressed tooth, beneath which there is no angle; *hands* unequal, rounded above and beneath; *fingers* black, at base colour of the hand, teeth obtuse; *tibia* of the remaining feet fasciculate above and beneath with rigid hairs and punctured each side; *tarsi* densely hirsute above and beneath, a longitudinal fascicle each side at base, tips glabrous; *abdomen* of the male, second segment hardly narrower than the preceding, third segment hardly wider than the next, convex each side, lateral edge regularly rounded, penultimate segment slightly wider at tip than the base of the terminal segment, ultimate insisure nearly rectilinear or but slightly curved.

Length three inches and one fourth, breadth four inches and a half.

Esteemed as food and sold in the Charleston market, tied up in small parcels of from four to eight together. It attains to a much larger size than either of the preceding species, from which it may be distinguished by the form of the clypeus, lateral teeth, abdominal segments, &c.

3. C.* *aculeatus*, Hirsute; thorax each side, arms and feet above with numerous erect spines; *clypeus* emarginate in the middle and each side.

C. spinifrons, Herbst.? Lat. Hist. Nat. Sonin. vol. v. p. 347.

Inhabits coast of the southern states.

Cabinet of the Academy.

Body above with numerous filiform hairs; *thorax* varied with very pale ferruginous, and whitish, armed with about six blackish, acute spines each side, of which four are in a marginal series, the anterior one smallest and placed at the posterior canthus of the eye; *clypeus* deeply emarginate in the middle, and more obtusely so each side, minutely dentate, with three indented lines, and four or six-spined at tip; *orbits* without distinct fissure, above three-spined, beneath spinous; *antennæ*, exteriores more than half the length of the thorax; *feet* with four or five small teeth above on the third joint, that of the anterior pair with two prominent acute spines at tip separated by the impressed band, second joint of the anterior feet dentated on the anterior edge; *carpus* with fifteen or twenty erect, acute, blackish spines; *hands* large, unequal, spinous, spines erect, blackish, more obtuse towards the inferior edge; *fingers* striate, black, armed with obtuse teeth; *tibia* of all the feet spinous above; *tarsi* hairy beneath.

Length about nine tenths, breadth one inch and one tenth.

Found on the coasts of Georgia and E. Florida, and generally occurs concealed in a large species of gelatinous *alcyonium* which is frequently cast up by the waves. A species of *Balanus* is often attached to their thorax. This does not agree with the description of *C. spinifrons* as quoted in Rees' Cyclopædia from Fabricius, but it may possibly approach in character to that of Herbst as quoted by Latreille. In order that the truth may be ascertained I have given a detailed description of this animal, that those who may have an opportunity may judge of its identity by comparison.

I should have referred this species to the genus *Eriphies*, Latr. but the antennæ are not remarkably elongated, nor distant from the ocular peduncles. It cannot be referred to the genus *Atelecyclus*, Leach, as the hands are not crested.

Genus PINNOTHERES.

For characters see p. 67.

SPECIES.

1. P. *maculatum**. Body with very short desiduous, dense hair; clypeus obtusely angulated, indented above the tip.

Inhabits the muricated Pinna of our coast.

Cabinet of the Academy.

Male. *Body* indurated, above black, beneath yellowish white; *thorax* with very short, desiduous, dense hair, a dorsal whitish vitta, which is contracted in the middle and near the base, cruciate before and abbreviated near the clypeus, a large triangular whitish spot each side before the middle, and an obsolete whitish abbreviated line each side behind; *clypeus* and *anterior part of the thorax* margined with whitish; *pectus* and *abdomen* with black insisures, the latter gradually straitened to the tip, which is rounded; *feet*, third and fourth pairs with the second joints of the tibia ciliated on the posterior outer submargin.

Female. Body somewhat indurated, obscure brownish, immaculate, hair shorter, more desiduous and dense than that of the male; *thorax* orbicular, minutely punctured beneath the hair, a double dorsal series of irregular indentations, of which the hind ones are more conspicuous and sometimes confluent into an arcquated line; *feet,* second pair ciliate on the inner part of the penultimate joint, third and fourth pairs not ciliated; *abdomen* ciliated at the edge, and obtusely carinated on the middle, tip entire, very obtusely rounded.

Length, male, seven twentieths of an inch; female rather more than two fifths of an inch.

A common inmate of this species of Pinna. In one shell I found the two sexes, and in another two females, but this plurality rarely occurs.

2. P. *Byssomiæ*. (Female.) *Thorax* somewhat transversely oval; clypeus hardly advanced, rounded, entire; hand not gibbous near the base of the thumb.

Inhabits the *Byssomia distorta*.

Cabinet of the Academy.

Thorax glabrous, rounded each side, immarginate; *eyes* sanguineous; *anterior feet* with the hand linear, or not gibbous near the base of the thumb above, ciliated on the inferior edge, fingers two thirds the length of the hand, armed with minute teeth; thumb with a prominent, acute tooth near the base, closing between two much shorter distant ones of the finger; *carpus* with an abbreviated ciliate line within, third joint ciliate on the inner edge; *second pair of feet* ciliate beneath the penultimate joint; *tarsi* unarmed.

Length about one-fourth of an inch.

I found a single female of this species in an anomalous Byssomia, which in a MSS. account of the shells of North America I have named *B. distorta.* It imbeds itself in the large *Alcyonium* of the southern coast, and between individuals of a species of aggregating *Ascidia.*

It is infested by two very distinct kinds of parasites, which I regret not having had an opportunity to examine satisfactorily. One resembled *Fascicola* with the ocellate points of *Planaria.* I have named it *Fascicola nigra.* Body cylindrical, blackish, two ocellate spots near the anterior extremity. It was active, motion undulatory. The other was numerous, attached in two fascicles to the exterior of the thorax, and resembled a minute species of *Amphitrite.*

3. P. *cylindricum**. Body transversely-subcylindrical; anterior feet didactyle, equal; second and third pairs nearly equal, and with punctured tarsi; fourth pair very robust, larger and longer than the anterior ones; posterior pair very small; eyes approximated, orbits ovate orbicular.

Inhabits coast of Georgia.

Cabinet of the Academy.

Body indurated; *thorax* punctured, above depressed, a transverse, abbreviated, indented line behind the middle, and with an elevated line between the origin of the two hind feet, from which the thorax is defracted behind, sides decurved to a rounded tip; *anterior feet*, third joint with a transverse, indented, obsolete line before the tip; *carpus* unarmed; *hand* moderate, elongate quadrate, fingers arcuated, meeting at tip and forming a suboval interval, finger with a larger tooth near the tip, thumb with one behind the middle; *second* and *third pair of feet* with the penultimate joints pectinated beneath, tarsi with three pectinate lines, third joint of the latter pair granulate above and beneath; *fourth pair*, very robust, third joint larger than the hand, with a double line of granules above, confluent near the tip, and a profound concavity behind, which is granulated on the inferior edge, second joint of the tibia with a double prominent obtusely pectinated line beneath; *posterior feet* very small, simple, hardly attaining the tip of the third joint of the preceding pair, and not equal to the distance between their bases; *tarsi* short, conic; *abdomen* of the *female*, suborbicular, covering the pectus, much narrowed at base, attaining the bifid tip of the pedipalpi, and with a double impressed line in the middle, of the *male* linear, tip rounded and slightly narrower than the base.

Length of the male, three-tenths, breadth, thirteen twentieths; length of the female, seven-twentieths, breadth, three fourths.

Found by Mr. William Maclure on Jeykill island, Georgia, and subsequently an individual of the other sex by myself near the same place.

The pedipalpi are precisely the same as in Pinnotheres, but this animal seems to be estranged from the genus by several minor characters, as those drawn from the robust fourth pair of feet, the indurated consistence of the body, the transverse thorax, &c. In the two latter respects somewhat resembling the following species. From its magnitude, the firmness of its integuments, and the similarity of the sexes, it seems probable that it is not parasitic. Under these considerations I considered it the type of a distinct genus, and had associated with it the following species; but I prefer in this place uniting them under the genus Pinnotheres.

4. P. *monodactylum**. (Male.) Thorax transverse; hands monodactyle.

Inhabits the American coast.

Richmond Museum.

Thorax transversely subeliptical, narrowing each side to the middle of the lateral edge, which is rounded, a tubercle each side marking the situation of the anterior lateral angles, surface punctured; *orbits* suborbicular; *antennæ*, exteriores subequal to the breadth of the clypeus; *hand* oblong, somewhat quadrate; *palm* concave and ciliated in the middle, a spiniform angle instead of a finger, with a tooth at its base, and another at the base of the thumb larger; *thumb* abruptly incurved at base, rectilinear towards the tip, with an angle at the interior middle, tip acute, attaining the tip of the spiniform angle; *feet*, second, fifth and third pairs subequal, the latter rather larger, fourth pair larger, and with the fifth pair with somewhat dilated tibia; *abdomen* with a few larger punctures, terminal joint rounded at tip, entire, ciliated and attaining the tip of the geminate joints of the pedipalpi.

Length three tenths, breadth one half an inch.

This curious animal occurs in the Richmond Museum. Mr. J. Warrell, the proprietor of that interesting establishment, supposes it to be American, but whether from our eastern or western coast he could not say. It is particularly remarkable in having monodactyle hands, a character which in a very rigid arrangement would not only separate it from the genus Pinnotheres, but also from the preceding species as a distinct genus. The tibia of the fourth and fifth pairs of feet are somewhat dilated, but the corresponding tarsi are accidentally wanting in this specimen.

Genus LEPTOPODIA. *Leach.*

Rostrum elongated, entire; eyes not retractile, distant; pedipalpi, second joint of the peduncle, half as long as the first; palpi hirsute, first and second joints subequal, third longest; feet, anteriores didactyle; tarsi elongated; *abdomen* six-jointed.

SPECIES.

L. *calcarata**. Third joint of the feet three-spined at tip, the middle one large, prominent, and obtuse.

Inhabits coast of South-Carolina.

Cabinet of the Academy.

Thorax inequal, with distant, somewhat acute tubercles, an indented transverse line before the middle, region of the eyes equal; *ocular peduncles* slightly projected before the eyes in an obtuse spine; *antennæ* shorter than the rostrum, a small spine at their exterior base; *feet*, anterior pair acutely spinous above and beneath, third joints of the remaining feet three-spined at tip, of which the superior one is very robust, elevated, obtuse, and half as long as the first joint of the tibia; *abdomen* obtusely carinated in the male.

Length one half, breadth one fourth of an inch.

I obtained but a single specimen of this remarkable species (a male) in the bay of Charleston on a Gorgonia. It is sufficiently distinguished from the other species of the genus by the very remarkable spine at the tip of the third joint of the feet.

Genus PORCELLANA.

Thorax orbiculate-subquadrate; antennæ, interiores with an elongated peduncle, exteriores elongated, setaceous; external pedipalpi with the inner first joint dilated within; feet ten, anterior pair didactyle, dilated, fifth pair spurious; *tail* bilamellate each side.

SPECIES.

P. *soriata**. Carpus and hand tuberculate before, tubercles very obtuse, each composed of from four to nine granules; anterior part of the thorax deeply crenate, crenæ inflected, in the two lateral ones are placed the eyes and antennæ.

Inhabits the southern coast.

Cabinet of the Academy.

Thorax naked, edges granulated, an anterior transverse line of about four very obtuse tubercles; *clypeus* with an impressed line, edge three-toothed, of which the anterior one is more acute, the lateral ones forming the inner supercanthus of the eyes; *feet* hairy, third joint unarmed, first joint of the tibia grooved above and with the second granulated; *anterior feet*, third joint slightly granulate at tip and on the anterior edge, the anterior condyle rather prominent; *carpus* destitute of hair, nearly as large as the hand, with numerous granular tubercles on the upper side, anterior edge with a prominent tooth subequal to the condyle of the preceding joint and granulated; *hands* hirsute on the inferior edge, elevated into an emarginate and granulated angle above, anterior side compressed and with granulated tubercles, which are somewhat arranged in lines longitudinally, and with the carpus beneath convex, smooth, and white; *fingers* granulated before, granules of the thumb arranged in about three lines, teeth small, regular, resembling the granules, and like them diminishing in size to the tip.

Length of the thorax one-fifth of an inch.

A number of specimens occurred, cast ashore on the beach of St. Catharine's island, Georgia, in an alcyonium.

NOTES.

HEPATUS *fasciatus*, Latr., is not uncommon on the coasts of Georgia and Florida. It varies considerably in the arrangement and configuration of its spots. When young it is generally more or less fasciate with reddish, but in the adult specimen, these bands are interrupted into large spots, which are each diluted on the disk, and are somewhat symmetrically disposed. In a specimen brought from Guadeloupe by Mr. L'Hermenier, the spots are minutely divided, punctiform, and equally distributed; the abbreviated granular lines so conspicuous in the young specimen, become almost obsolete in the adult state; the colour of the spots or bands varies from a purplish to a deep sanguineous.

As this species agrees very well with the description of *Cancer epheliticus* of the *Amœnitates Academicæ*, vol. vi, p. 414, I have no doubt of its being the same. The figure which *Rumphius* has given, tab. 8, fig. 5, and which is referred to by the author of the above mentioned description, bears a general resemblance to the *fasciatus*. *Cancer floridus* of Linné, said to be an inhabitant of India, but which is described as a native of North America, in the *Encyclop. Methodique*, is probably also the same, as the description of that lost species agrees very well with our specimens of *fasciatus*.

PORCELLANA *galathina*. We found many specimens on the coast of Georgia and Florida.

LEUCOSIA *punctata*, is very common on the southern coasts.

MAJA *spini-cincta*, Lam., a specimen was taken in Delaware bay several years ago, and is now in Peale's Museum.

The massive variety was found by Mr. Vanuxem and myself, on the Baltimore turnpike, one mile from the bridge.

Fluate of Lime. Fluor Spar. W. *Chaux fluatée.* H.

Mr. Vanuxem proved a mineral to be fluate of lime, which was given him by Mr. Hagner, about two years since, from the quarry of gneiss at the falls of Schuylkill. Colour Violet blue. No determinate crystallization.

Sulphate of Barytes. Baryte. W. *Baryte sulphatée.* H.

This mineral is found in considerable quantities at the lead mines at Perkiomen, both compact, and crystallized in a crested form, of a white colour, sometimes tarnished by iron either yellow or black, forming fine specimens. It is associated with lead, quartz and iron. About three miles west of Newhope, it occurs in considerable quantities, compact and crystallized, in the old red sandstone formation, with a small quantity of copper.

COMBUSTIBLES.

Amber. Succin. H.

Amber has been found in small quantities at Croswick's creek, about one mile from Bordentown; and on the Delaware, at Whitehill; in both places with pyrites and carbonised wood. Cleveland says, it also occurs near Woodbury, in large plates in a bed of marl; and at Camden, opposite the city, where a large piece had been found in a stratum of gravel.

Bituminous Wood.

This substance is sometimes found in the marl of Newjersey. Some specimens have been brought from Woodbury, black, and of a perfectly ligneous texture. It burns rapidly, and gives out a strong, disagreeable smell. It occurs also at Croswick's creek.

I beg leave to add, that there are several minerals found lately in this vicinity, the characters of which are not sufficiently determined to be admitted into this paper.

Description of three new Species of the Genus Næsa.

By Thomas Say.

[The following portion of the *Account of the Crustacea of the United States*, was mislaid, so that it could not appear in its proper place; it ought to have succeeded the genus Sphœroma, in the paper alluded to.]

Genus NÆSA. *Leach.*

Tail, ultimate segment largest, furnished on each side with a simple, pedunculated, subrectilinear, appendice; *antennæ* subequal, from twelve to twenty-jointed, superiores with an ample biarticulated peduncle, the basal joint larger; space between the antennæ obvious, but not ample, base not concealed by the clypeus; *nails* bifid.

SPECIES.

1. N. *caudata**. Ultimate segment of the tail, tuber-

culated and with a profound sinus at tip; first caudal segment conspicuous.

Inhabits Eggharbour.

Cabinet of the Academy.

Body oblong-oval, semicylindrical, a little attenuated before, segments equal, first one longer, nearly equal to the head; first segment of the *tail* equal to those of the body, with three distant tubercles above, *terminal segment* as long as the four preceding ones conjunctly, depressed near the tip, and marked by a deep sinus, within which are two or four small teeth, and above its base a larger vertical one, base of the segment with three distant tubercles, the lateral ones double; lateral processes spiniform, a little incurved, surpassing the tip of the segment; *eyes* longitudinally oval, convex, prominent; *anterior feet* simple, resembling the others; colour fuscous.

Length rather more than one fourth of an inch.

Found on the sea beach, in small pools of water left by the recess of the tide.

2. N. *depressa**. *Body* broad, depressed, linear; *first caudal segment* concealed, *second* attenuated; *anterior feet* monodactyle.

Inhabits Eggharbour.

Cabinet of the Academy.

Body broad, depressed, punctured, sides parallel; *segments* subequal, anterior ones rather shorter; *first segment of the tail* not visible, *second* equal, as long as the three preceding visible ones, attenuated to an obtuse point, which is carinated above and attained by the lateral, spiniform, acute processes, beneath concave, effuse at tip; *eyes* apparently lunated, but really rounded, with distant granules, and touching the anterior segment of the body; *hands of the anterior feet* dilated, ovate, *thumb* as long as the palm, nearly attaining the carpus, tip closing within a prominent, spinose tooth, on the base of the palm; *hands of the second pair* cylindric, incurved, with a process dentate at tip, and placed at the inner base, armed with an equal incurved thumb not closing on the hand, obtuse, and furnished with a seta at tip; remaining feet ciliated.

Length half an inch, breadth rather more than one fifth of an inch.

Found with the preceding species, common.

3. N. *ovalis**. Body oval, depressed; ultimate segment of the tail obtuse, with three hardly raised very obtuse lines at base; lateral appendices dilated, three caudal segments.

Inhabits bays and inlets of the United States; common.

Cabinet of the Academy.

Body perfectly oval, segments subequal, fourth, fifth, and sixth largest, first segment of the tail equal to the preceding one, simple; *terminal segment* triangular, obtusely rounded at tip, rectilinear each side, half as long as the body, with three longitudinal, abbreviated, raised, very obtuse lines at base, of which the middle one is most conspicuous; *lateral processes* dilated, depressed, rectilinear within and rounded on the external margin, so as to form with the terminal segment a perfectly semiorbicular termination of the body, without interval; *head* somewhat unequal; *eyes* conspicuous, hemispherical; *antennæ* equal; *labrum* triangular, advanced, very conspicuous, terminating the head before and forming with the base of the superior antennæ behind it, a rounded termination without interval, completing the oval form of the body; *feet* all armed with bifid nails, none of which close on the preceding joint.

Length less than three twentieths of an inch.

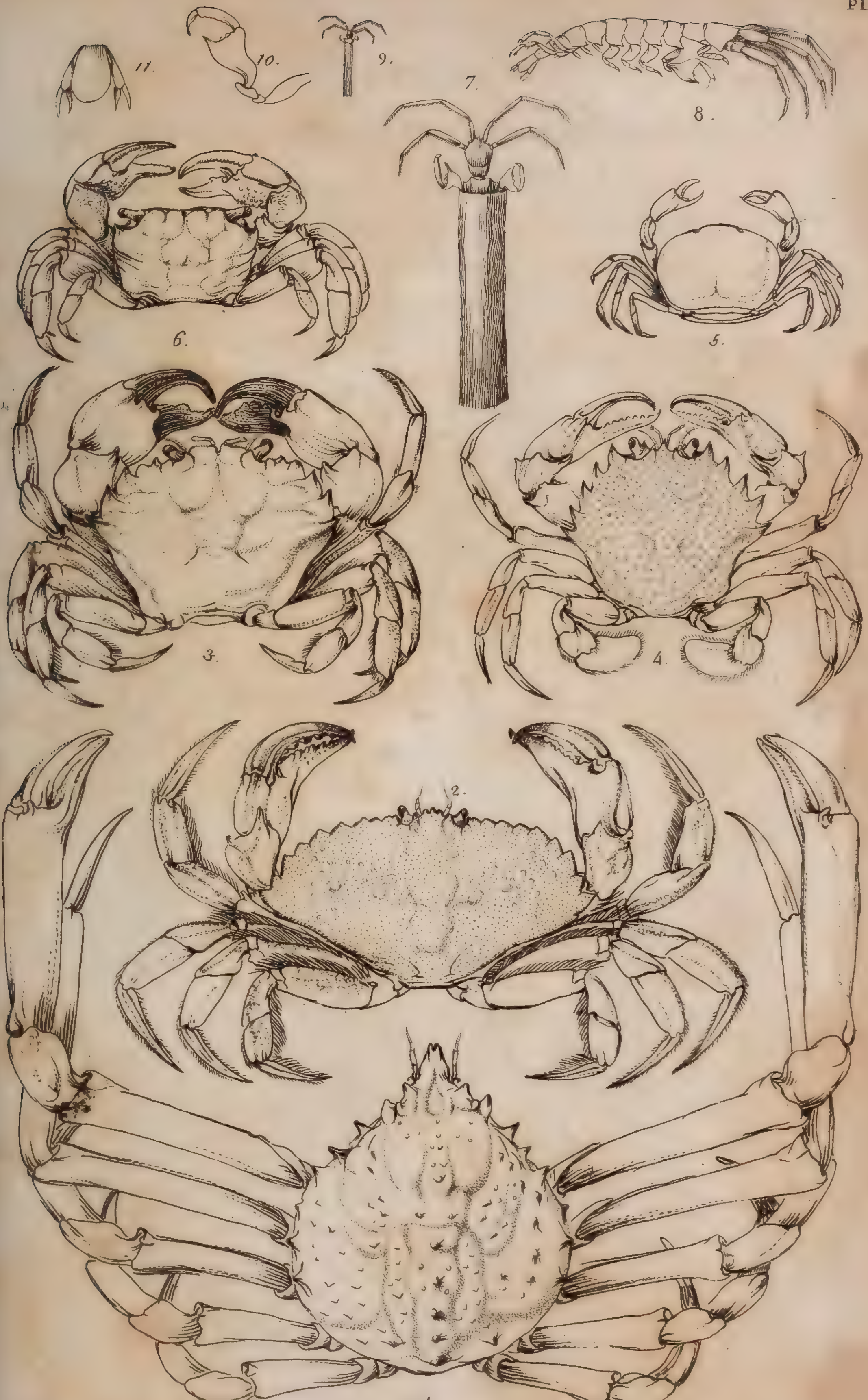
This little animal is extremely common in sea water, usually creeping on fuci and other marine plants; we found it as far south as St. John's river in Florida.

REMARKS BY THE PUBLISHING COMMITTEE.

In concluding the present volume, the publishing committee consider it a duty which they owe to the readers of the Journal and to themselves, to state, that when the paper of Mr. Rafinesque was admitted into the preceding pages, they were not informed that a portion of it had already appeared in a contemporary journal, otherwise, agreeably to the plan upon which the work has been conducted, that paper, or at least the exceptionable portion of it, would have been rejected; this procedure would have been indispensable for the interest of science, as one of the species described, had been previously published, by Mr. Rafinesque, under a different specific name, and no direct reference is given by which its identity might be detected; it is therefore proper to state, that *Exoglossum Lesurianum* of this Journal is absolutely synonymous with *Exoglossum vittatum* of professor Siliman's journal.

It is necessary further to observe, that the society explicitly disavows any responsibility for the contents of the papers which are published, such responsibility resting entirely with the authors.

PL. IV.



C. A. Lesueur D. & Sculp.

III

dages pendant from the extremity of the lower jaw; pectoral fins broad and long, exceeding a little the base of the dorsal; ventral fins very long, originating near the middle of the body; dorsal and anal fins large and truncated; the pectoral and ventral marked with brown bands.

Observations.—This species, as well as *E. fasciatus*, presents brown bands upon the pectoral and ventral fins; the head is also equally flattened above, and carinated under the gorge. The under side of the body is, however, shorter, less elongated, with the third ray of the ventral fin longer; the anal fin smaller than the dorsal. The caudal fin lunulated, with the lower lobe longer. Scales over all the body, along the lateral line, and on each side of the abdomen. Eyes large, situated at the summit of the head, and near the extremity of the mouth. Mouth transverse, and rather large.

Color, blue upon the back, argentine and blueish along the sides.

Hab. In the Gulf of Mexico. Communicated to me by Mr. Nuttall.

P.—V. 10.—D. 15. simple.—A. 8.—C. 17.

Descriptions of the Thysanouræ of the United States.

By Thomas Say.—*Read Nov. 21st,* 1820.

Genus Machilis, Latr.

Eyes compound, occupying almost all the head;

abdomen beneath with an appendage for leaping; tail with three styles of which one is above the others.

Species.—M. **variabilis.* Superior caudal process more than double the length of the others; false feet bisetous at tip; colour cinereous or iridescent varied with black.

Inhabits North America.

Cabinet of the Academy.

Body above cinereous, somewhat iridescent, varied with black; gibbous portion of the body not differently coloured; a more or less regular whitish vitta; *false feet* white, hirsute, setaceous at tip; superior caudal process more than double the length of the inferior ones.

Var. a. Body above unicolor, destitute of the white dorsal vitta.

Var. b. Body ferruginous, with dusky lateral spots.

Var. c. Body with several snowy spots each side.

A common insect in many humid places, probably in almost every temperate part of North America. We observed it as far south as East Florida. It is subject to a great many variations.

Genus—PODURA.

Antennæ four jointed, filiform, terminal joint entire; body cylindrical; trunk distinct.

Species.—1. P. **fasciata.* *Body* yellowish-white with four distant black bands; *tail* black; bands paler beneath; *spring* white; *antennœ* blackish; *eyes* black.

Length one-twentieth of an inch.

Cabinet of the Academy.

In considerable numbers under the bark of decaying Live Oak, &c. in Georgia and East Florida.

2. P. **bicolor*. *Body* plumbeous; *feet* with a few hairs, rather paler at base; *nails* small, acute; *spring* large, white; *eyes* deep black.

Length from one-tenth to three-twentieths of an inch.

Cabinet of the Academy.

Our most common species, under stones, &c.

3. P. **iricolor*. *Body* blackish, iridescent; *thorax* with long hairs before; *abdomen* hairy at tip; *feet* hairy, whitish; *head* beneath and *antennœ* hairy.

Length nearly one-fifth of an inch.

Cabinet of the Academy.

Inhabits Pennsylvania, common.

Genus—SMYNTHURUS. Latr.

Antennæ attenuated towards the tip, four jointed, ultimate joint composed of many smaller ones; trunk and abdomen united into a rounded mass.

SPECIES.—S. **guttatus*. *Body* yellowish-white, with numerous reddish-brown, irregular spots, disposed in bands; numerous, sparse, white hairs, and two tubercles each side of the middle, which are truncated at tip; beneath white; *antennœ* reddish-brown, hairy; *face* maculated, a line of irregular spots behind the eyes; *eyes* black; *spring* flesh-coloured.

Length rather more than one-twentieth of an inch.

Cabinet of the Academy.

Found under the bark of the long leaved Pine, (P. palustris) in Georgia.

Observations on the Geological Structure of the Valley of the Mississippi. By Thomas Nuttall. *Read, December* 1820.

§ I. THE PROBABLE LIMITS AND CHARACTER OF THE SECONDARY FORMATION.

The near approach which the calcareous and other strata west of the Alleghany mountains make to the horizontal line, considering their inherent character, has been a matter of surprise to those who are any way familiar with the geology of Europe. A number of hand specimens, which some years ago I compared with what is called the compact mountain limestone of Derbyshire, in England, presented not a single dissimilar feature, either in regard to composition or organic reliquiæ; and I am fully satisfied, that almost every fossil and shell figured and described in the "Petrificata Derbiensia" of Martyn are to be met with throughout the great calcareous platform of the Mississippi valley. We everywhere, perceive the same host of Terebratulites, Alcyonites, and Encrinal vertebræ; the same zoophi-

IV

A Notice concerning the Spider, whose webb is used in medicine. *By* N. M. HENTZ.

It has been found lately, that the webb of a species of spider, common in the cellars of this country, possesses very narcotic powers, and it has been administered apparently with success in some cases of fevers.

Having for some time past, studied with care, the genus Aranea of Linneus, I have been induced to write a description of this species; I therefore made a drawing taken from a large female, which accompanies the present notice.

The genus Aranea of the first writers on Entomology being composed of a very great number of species, it has been found necessary to divide it into smaller sections, or families. Gmelins' edition of Linneus contains ninety eight species; Walckenaer enumerates nearly three hundred, and the number may be carried to a thousand. If the colour of the abdomen were the only character to find the species among several hundreds, it would be a very difficult task to assign with certainty a name to each separately, without any other description. Messrs. Latreille and Walckenaer have rendered the history of this genus quite easy to study: they have left little undone in regard to the species known to them. It is to be regretted that Mr. Walckenaer's Tableau des Araneides is not a more common work.

I shall therefore give the generic characters of this spider, as if the work was unknown to the naturalists in this country.

It belongs to the genus Tegeneria of Walckenaer, and to that of spiders, properly so called, of Latreille. Its characters are: eight eyes, forming two parallel lines, the upper being curved and longer. Lip wider in the middle, cut straight at its extremity. Maxillæ inserted upright, not bent on the lip. Corselet nearly as large as the abdomen. The first pair of legs the longest, the fourth next, then the second, and the third the shortest. MANNERS, spiders forming an horizontal web, with a cylindrical tube, in the form of a funnel.

This is sufficient to characterise the genus, containing the different species of spiders, which inhabit cellars and dark places. The species that makes its web in the fields, on bushes, does not belong to the same genus; it has been properly separated from it by Walckenaer. The last pair of legs is the longest in this, and the eyes differ essentially in their situation. There is another species, very common in Carolina, which, however, I have not yet observed here, making a web nearly similar to this, but very different in all its generic characters; it ought not to be taken for the other: I intend publishing a description of the genus Aranea, in which this will form a separate section. But the characters which I have given are sufficient to ascertain whether a spider belongs to the genus Tegeneria, so that with some attention, no mistake will occur.

The species which I am treating of, is of a black colour, inclining to blue; the abdomen is marked with about ten livid pale spots, and a line towards its anterior extremity: I have seen specimens where the legs were marked with black spots. I think it necessary to remark here, that spiders of the same species living in dark places, vary greatly in their colours, according to the manner in which the light strikes upon them. The great point in this case I think, is to ascertain the genus, for it appears that the web of all species belonging to it, has the same virtues, and this is distinct from the Aranea Domestica, whose web has been used in Europe: we see an illustration of this in the genus *meloe*, where every species possess more or less the blistering power.

The present American spider, I think, has not been as yet described: for the present I shall call it Tegeneria Medicinalis.—Pl. V. fig. 1.

a—organs of manducation.

b—position of the eyes.

Description of some new crystalline forms of the minerals of the United States. By Dr. G. Troost.—*Read March* 6, 1821.

As yet but little attention has been paid to the crystalline forms of the minerals of this country, many of which have no analogies with those described by European crystallographers. Among this number may be mentioned a variety of phosphate of lime, with the description of which, I have now the honor to present the Academy, and hope to continue the research by the examination of some others in my possession.

1. PHOSPHATE OF LIME (*unitaire.*) Plate V. Fig. 3.

The representative signs of these crystals with the indications of the principle angles, are,

$$M\overset{1}{B}P$$

$$M\,x\,P$$

Inclination of M upon P 90°
M upon M 120°
x upon P 140° 47′
x upon M 129° 13′

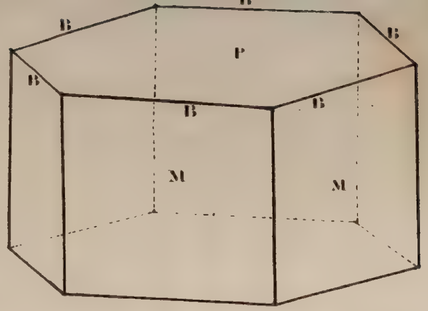
The faces x being formed by the decrement of a single range of molecules, I have termed it Phosphate of lime (*unitaire*) according to the nomenclature of Mr. Hauy.

2. PHOSPHATE OF LIME (*unitaire compressed.*)

The crystals are sometimes so much flattened or compressed, as to put on the appearance of an eight sided table with bevelled edges. In this case the two opposite faces of the prism M offer square surfaces at the same time that the faces P P, and four of the faces of the hexaedral prism are linear.

Besides these two varieties there occurs in the same matrix, crystals of the primitive form, varying from one tenth of an inch to an inch; as well as in rounded pieces. Indeed nearly all the crystals present some of their edges rounded, and particularly the margins of the summits, so that they often have the appearance of hexaedral prisms terminated by rounded summits.

7 *a*



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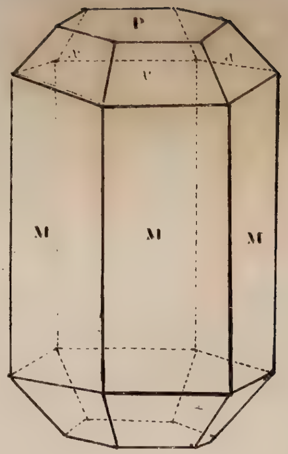

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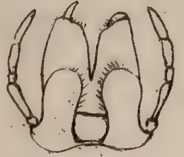

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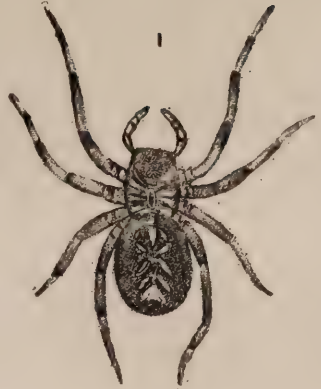

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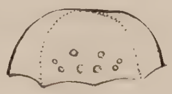

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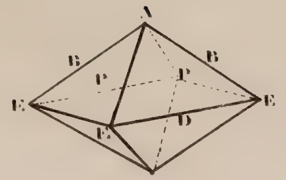

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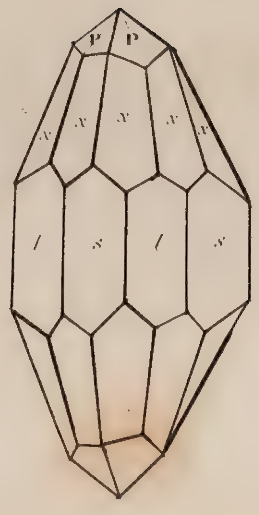

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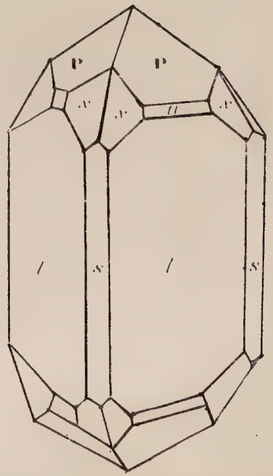

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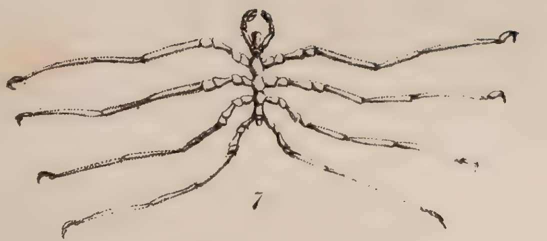

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V

An account of the Arachnides *of the United States.*

By Thomas Say.

The following descriptions of the *Arachnides* of this country, which respire by means of trachea in the manner of insects, may be regarded as the continuation of a series of essays, of which the "account of the Crustacea," &c. is the first, on the vast orders of *articulated animals with articulated feet,* (Annulosa of Cuvier) natives of this country. As the nature of the journal precludes the introduction of old matter or known facts, I shall confine myself in its pages, to the description of such of these animals only, as appear to be unknown to naturalists, or to the elucidation of such, as from their obscurity, are not understood.

SUBCLASS I. CEPHALOSTOMATA.

ORDER 1st, PODOSOMATA.

GENUS *ANAPHIA.†

Pl. 5. fig. 7.—*a* Trophi.

Artificial Character.—Mandibles longer than the rostrum, first joint longer than the second; palpi none; nails single.

Natural Character.—*Body* very slender, composed of four segments bearing feet, and a small suboval caudal process; *head* prominent, not perceptibly contracted behind, and consisting of a prolongation of the anterior segment of the body; *eyes* four,

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† From α, without, and ἁφὴ, *tactus* the touch.

inserted on a common tubercle, upon the top of the head; *mandibles* robust, didactyle, inserted at the extremity of the head, porected, parallel, two-jointed, longer than the rostrum, first joint elongated attaining the tip of the rostrum; *hand* abruptly inflected upon the tip of the rostrum; *rostrum* porected, cylindrical, truncated at tip, shorter than the body, and inserted beneath the first segment; *palpi* none; *feet* eight, filiform elongated, slender; *coxæ* three-jointed, the middle one longest; *thighs* one-jointed; *tibiæ* two-jointed; *tarsi* two-jointed, the first very short; *nails* single, arcuated, capable of being inflected.

SPECIES.—A. **pallida*. *Body* whitish; *ocular tubercle* acute at tip; *eyes* sanguineous; *hands* suboval, slightly hairy, not dilated, inflected vertically, and with the fingers, hardly more than two-thirds the length of the preceding joint; *fingers* arcuated, crosssing each other near the tip; a small, rather acute tubercle at the base of the anterior feet (probably the rudiment of the egg-bearing organ;) *coxæ* second joint clavate; *tibiæ* first joint rather shorter than the second.

Length of the body 1-4 of an inch.

Span of the feet 1 1-2 inch.

Inhabits the coast of South Carolina.

Cabinet of the Academy.

Of this new genus I found two specimens in the bay of Charleston, S. C. upon the branches of the *Gorgonia virgulata*, and as they have not the egg-bearing organs, I suppose them to be males. This animal resembles Phoxichilus in being destitute of palpi, but differs from it in having didactyle mandibles and simple nails. In the form of the mandibles it resembles Nymphon and Ammothœa but the want of palpi distinguishes it from those genera, its proper situation is probably next to the genus Phoxichilus. It, unquestionably, is generically the same with *Phalangium aculeatum* of Montague, (Trans. Lin. Soc. vol. 9, tab. 5,) which Dr. Leach, in the article *Crustaceology* of Brewster's Encyclopædia, refers to the genus *Nymphon*, but which, as far as I can discover, he has omitted in his subsequent works. It will of course be a second species of this new genus.

ORDER II. POLYMEROSOMATA.

FAMILY 2. SCORPIONIDEÆ.

Genus BUTHUS. Leach. *Scorpio,* Latr.

Palpi brachiform, didactyle; eyes eight; abdomen terminated by a caudal process of six articulations, of which the terminal one is armed with a venomous aculeus.

SPECIES.—B. **vittatus.* Fuscous, with three fulvous vitta; sides black.

Inhabits Georgia and Florida.

Cabinet of the Academy.

Body above granulated, granules irregular, distant, three fulvous equal vitta, and an elevated, interrupted vertebral line; *sides* black, rugose, *beneath* white; *thorax* reddish brown, more scabrous before and behind, hardly marked by the vitta, subemarginate before, and divided by a longitudinal impressed line, region of the dorsal eyes blackish; *palpi* longer than the body, with granulated lines, carpus with three or four of the granules more conspicuous; *hand* subovate, greatest diameter about equal to that of the preceding joint; *fingers* filiform, incurved, longer than the hand, reddish-brown, furnished with numerous minute teeth; *feet* paler than the palpi, minutely granulated above and beneath; *caudal process* colour of the palpi, longer than the body, with granulated costa, those of the penultimate segment not more conspicuous; *terminal segment* subovate, slightly mucronate beneath the aculeus, the costal granulæ minute.

Length from tip of the palpi to tip of the caudal process, 1 inch and 7-10ths.

I found numerous specimens of this species on the sea islands of Georgia and in East Florida, hybernating beneath the bark of trees.

The wound inflicted by the puncture of their aculeus, causes much pain and intumescence, but is readily cured by the topical application of the volatile alkali.

The species to which *vittatus* is allied, are the *punctatus* of Degeer and *Americanus* of Linné, but according to Latrielle (v. Sonninis' Buffon) these are both spotted with brown, the caudal process of *punctatus* being of the length of the body and that of *Americanus* three times the length of the body.

It is, however, very possible that our species may be a variety of *punctatus*.

Genus CHELIFER. Geoff, Leach.

Palpi brachiform, didactyle; thorax with the first segment dtvided by a transverse indented line; eyes two; mandibles short.

Species.—1. C. **muricatus*. Third joint of the palpi nearly three times as long as the second, linear, gradually a little attenuated to the base; thorax muricated.

Inhabits North America.

Cabinet of the Academy.

Body ovate, narrowed before, rounded behind; *thorax* black-brown opake, gradually narrowed from the base to the tip of the mandibles, armed with numerous short, robust spines; *feet* rufo-testaceous; *palpi* rufous, basal joints subglobular, gibbous behind, third joint cylindrical, nearly three times longer than the second, armed with short rigid hairs, and gradually attenuated to the base, fourth joint shorter but somewhat larger than the preceding one, and gradually much attenuated to its base; *hand* black-brown, above oblong-subovate, laterally linear, *fingers* as long as the hand, paler, incurved and furnished with a few elongated, flexible hairs; *abdomen* above black brown, and with the feet furnished with minute, spinelike hairs, segments margined with obsolete pale testaceous.

Length rather more than 1-10th of an inch.

Common in decaying wood, under bark, in houses, under stones, &c. I found a variety on the river St. John, in East Florida, of which the anterior portion of the abdomen and posterior part of the thorax is rufous This species considerably resembles C. *Hermanni* of *Leach,* (Zool. Misc. vol. 3, p. 49.)

2. C. **oblongus.* Second joint of the anterior feet hardly twice as long as the first, rather larger towards the base; thorax polished.

Inhabits North America.

Cabinet of the Academy.

Body oblong, sublinear; *thorax* reddish brown, polished, testaceous at base, rather abruptly attenuated from the middle to the tip, and with abbreviated flexible hairs, instead of spinules; *feet* pale, testaceous; *palpi* reddish brown, with dilated, short joints, and furnished with numerous flexible hairs, second and third joints subequal, the latter rather shorter and dilated in the middle; *hands* ovate, almost truncated at base; *fingers* shorter than the hand, and with a few longer hairs; *abdomen* above brownish, slightly hairy, polished, margins of the incisures testaceous. Smaller than the last.

Occupies the same situations as the preceding. It bears considerable resemblance, in the form of the palpi, to the C. *Geoffroyi* of Leach, (Zool. Misc. p. 50.) This species, as well as the preceding, are readily distinguishable from the *Phalangium acaroides* of Linne, by the mutic antepenultimate segment of the palpi.

ORDER 3. DUOMEROSOMATA.

FAMILY 2. PHALANGIDEÆ.

GENUS PHALANGIUM.

Body rounded; feet elongated; tarsi with numerous joints; mandibles salient much shorter than the body: eyes two, supported on a common tubercle.

SPECIES. 1 P. **vittatum*. Whitish, with a dorsal fuscous vitta; terminal joint of the palpi not pectinated with spines.

Inhabits the Southern States.

Cabinet of the Academy.

Body whitish, truncated and fuscous behind, a dorsal fuscous vitta from the clypeus to the cloaca and lateral fuscous line, above with dense, obtuse granules, beneath with distant ones; three profoundly impressed lines before the middle, of which the anterior one is semicircular including the ocular tubercle, the intermediate one transverse, and the posterior one recurved; *ocular tubercle* prominent, slightly contracted at base, crowned with from four to six more conspicuous, acute spines; *clypeus* not elevated, concave beneath the obtuse tip; *feet*, second pair about fifteen times as long as the body; *tarsi* capillary, articulations not contracted.

Length, female nearly one-fifth of an inch. Male much smaller.

The armature of the ocular tubercle is obsolete in the male, and in this sex there are generally two whitish lines, drawn from the base of the ocular tubercle to the tip of the clypeus, which are also sometimes visible in the female.

I have not found these in coitu, but have considered them of the same species, from their being associated and somewhat similar in form and markings.

2. P. **dorsatum*. Whitish, with a dorsal fuscous vitta, joints of the palpi armed with a series of spines.

Inhabits the United States.

Cabinet of the Academy.

Body rounded behind, whitish, a dorsal fuscous vitta continued from the clypeus to the cloaca, and obsoletely punctured with whitish, a few submarginal, obsolete, irregular lines or spots; granules dense, obtuse, not prominent; *ocular peduncle* prominent, contracted at base, slightly muricated before, obsoletely granulated; *clypeus* not elevated; *palpi* rather long, robust; second, third, and fourth joints pectinated on the exterior edge with acute, distant spines; fifth joint more densely pectinated on the inner edge; *feet* armed with minute distant spines; *coxæ* blackish; *pectus* with distant very distinct, obtuse granules; radical supports of the feet with a moniliform line each side in the incisures; *venter* nearly glabrous, granules indistinct; *tergum* not deflected.

Length of the female one-fifth of an inch.

Very similar in colour to the preceding, but sufficiently distinct by the spinulose palpi, &c.

3. P. **nigrum*. Body ovate, blackish; clypeus

prominent; radical joint of the three anterior pairs of feet armed with a spine; pectus and base of the feet white.

Inhabits the Southern States.

Cabinet of the Academy.

Body ovate, a little dilated each side behind the posterior feet, blackish, with a few obsolete paler spots, above and beneath, above granulated, granules spherical, irregularly placed in somewhat reticulated lines; *ocular tubercle* destitute of spines, with obtuse granules; *clypeus* prominent, somewhat elevated; *feet* short, fuscous, whitish at base; second pair hardly four times as long as the body, and, with the first pair, armed with a prominent, cylindric, obtuse spine behind the basal joint; third pair with a similar spine before; *pectus* whitish; *venter* blackish.

Length, female nearly one-fifth of an inch.

A very distinct species, and not uncommon in the Carolina's and Georgia.

4. P. **grandis.* Body oval, covered with short spines; ocular tubercle spinous; feet rather short.

Inhabits the Southern States.

Cabinet of the Academy.

Body oblong-oval, scabrous, with approximated, robust, short, acute, spinules; rufo-ferugineous, two impressed transverse lines before the middle; *ocular tubercle* prominent, slightly contracted at base, crowned with numerous, robust, acute spinules; *clypeus* hardly elevated; *feet* rather short; *pectus* with numerous, minute, acute granules; *venter* with but few

Length, female nearly seven-twentieths of an inch. Much the largest species I have seen.

GENUS GONYLEPTES. *Kirby.*

Feet moderate; tarsi from six to ten jointed; mandibles chelate; maxillæ none; palpi unguiculated.

Species. G. **ornatum*. Ocular tubercle hardly elevated, unarmed; hind feet remote; two erect spines behind.

Inhabits Georgia and Florida.

Cabinet of the Academy.

Body ovate reddish-ferruginous, destitute of granules, edge slightly contracted over the insertion of the fourth and fifth pairs of feet, two small acute tubercles on the middle of the disk, and two large, prominent, erect, acute spines on the hind margin, no impressed line before the middle, an anterior arcuated yellow transverse line connected to a posterior undulated one by a yellow line which is crossed near the middle by two obsolete yellow bands; *ocular tubercle* slightly raised, unarmed; distance between the eyes much greater than their diameters, orbits black; *clypeus* abruptly somewhat acute in the middle of the tip; *mandibles* rather small, the fingers subequal, and crossing each other at tip; *palpi* robust, and when at rest concealing the mandibles; penultimate articulation dilated on the exterior side and elongated and depressed; terminal joint half as long as the preceding, cylindrical; terminal nail elongated, moveable, capable of being inflected;

feet short, not three times as long as the body, three anterior pairs before the middle, posterior ones behind the middle and remote from the others; fourth and fifth pairs with double nails; *abdomen,* segments with a series of equidistant, minute tubercles.

Length, one-fifth of an inch.

This remarkably distinct species, we first discovered on Cumberland Island, Georgia, and subsequently many specimens occurred in East Florida, where it appears to be common. It is not an inhabitant of the Northern States.

FAMILY 3. ARANEIDEÆ.

Although I have a considerable number of descriptions of Araneides, which I think are new, yet, as I am not sufficiently well acquainted with the species of this family, in their different ages, prudential motives induce me to refrain from publishing them until further investigation shall qualify me for the task.

ORDER 4. MONOMEROSOMATA.

GENUS TROMBIDIUM.

Body consisting of a thorax and head united and distinct from the abdomen; two anterior pairs of feet distant from the others; eyes pedunculated, lateral; palpi with a moveable appendice beneath their tips.

SPECIES. 1. T. **scabrum. Body* ovate, broadest and very obtusely rounded before, pale reddish, minutely scabrous, surface unequal, with numerous indentations, and with hardly perceptible hairs; *thorax* obtriangular, short; *eyes* white; *feet* whitish.

Cabinet of the Academy.

In forests, on trees, &c. not uncommon.

2. T. **sericeum*. *Body* oblong-subovate, broadest before, narrowing behind, densely covered with short, silken hair; *thorax* elongated, sublinear, slightly contracted before the middle, and with a darker, central line above; *eyes* white, placed in a transverse line; *feet* paler, whitish.

Cabinet of the Academy.

Inhabits trees, in forests, under stones, &c. and is more common than the preceding.

GENUS ERYTHRÆUS. *Latr.*

Body without division, the two anterior pairs of feet not distant from the others; eyes two, sessile; palpi conic, chelate.

SPECIES. E. **mamillatus*. *Body* ovate, granulated, reddish-yellow, with a marginal impressed line, edge thickened, a robust, obtusely conic, granulated spine on the anterior lateral edge, before the middle of the disk two indented punctures, a few distant hairs; *eyes* approximated, whitish; *mandibles* granulated, a rounded tubercle on each of the middle above; *feet* paler than the body, yellowish, with scattered hairs.

Less than one-twentieth of an inch.

Under bark of trees, &c. Georgia and East Florida.

GENUS GAMASUS, *Latr.*

Mouth with mandibles; palpi prominent, very distinct, filiform; *pulvilli* at the apex of the tarsi.

SPECIES. 1. G. **antennæpes.* ***Body*** ovate, rufous, somewhat narrowed before, hairy and coriaceous; edge of the abdomen membranaceous, white; *feet,* anterior pair filiform, antennæform, longer than the body, remaining pairs much more robust, subequal, posterior thighs tridentate near the inferior tip; origin of the palpi with five or six acute spines above.

Cabinet of the Academy.

I have frequently observed this species, inhabiting, in considerable numbers, the body of *Passalus cornutus.* The fore feet are, as their slender appearance indicates, used as antennæ to feel the way, and not as feet to support the body.

2. G. **spinipes.* ***Body*** suboval, hirsute, rufous; *feet* with rather longer distant hairs, *second pair* very robust, third joint armed beneath with a large, prominent, acute spine, which is nearly as long as the transverse diameter of the joint, compressed, slightly serrated on its anterior edge, and with an accessary tooth or two at its base, fourth joint with an obtuse tooth beneath, sixth joint with a robust spine before its inferior middle, *first* and *third pairs* unarmed, *fourth pair* dentate beneath the third and fourth joints.

Cabinet of the Academy.

Inhabits ——————.

Remarkable by the prominent spine of the second pair of feet.

3. G. **musculus*. *Body* pale, oval, with scattered hairs more numerous each side; *feet* paler, with a few hairs above, two anterior pairs distant from the others, anterior pair longest, second pair rather more robust.

An active little animal, found in great numbers on an anonymous species of *Mus*, which inhabits East Florida.

4. G. **nidularius*. *Body* oblong-oval, somewhat depressed, with a slightly elevated margin, and with scattered hairs, whitish with internal blackish clouds, and two impressed points in the middle of the back; *feet* paler with a few hairs.

Cabinet of the Academy.

Less than one-fortieth of an inch.

Inhabits *Hirundo viridis* their nests and young. I am indebted for specimens to Mr. Reynall Coates.

5. G. **Juloides*. *Body* oval, pale brownish, depressed, behind vesicular and whitish, the coriaceous epidermis of the tergum terminating before the vesicular posterior margin in an emargination; *feet* short and very robust; *pulvilli* dilated, very short.

Cabinet of the Academy.

I obtained several specimens from the body of *Julus marginatus*. I have also observed it on *Polydesmus Virginiensis*.

GENUS ORIBITA. *Lat.*

Body coriaceous, capitate or rostrated before, palpi and mandibles concealed within the mouth; feet terminated generally by three nails, without pulvillus.

SPECIES.—1. O. **concentrica.* Black, opake; tergum concentrically lineated; venter plain.

Inhabits Pennsylvania.

Cabinet of the Academy.

Body spheroidal, black, opake, rounded before and carinated behind, invested with a brown epidermis; disk with about four elevated concentric circles, connected by numerous interstitial elevated lines; posterior carina crenate in compliance with the concentric lines; *head* subtriangular, rugose; *oral aperture* oval, closed by a valvular mentum; *eyes* two, minute, brownish, elevated on an elongated, slender filiform-peduncle; *orbits* elevated, rather large, placed near the base of the head above; *feet* rather short, deep black, minutely granulated, terminated by three incurved nails; *venter* plain, granulated, valves of the cloaca somewhat lineated.

A rather common insect, it moves very slowly, and inhabits beneath the bark of trees. I have found it, most frequently, beneath the bark of the common *Carya* (Nuttall) *tomentosa.*

2. O. **glabrata.* Body glabrous, polished, globular-oval black.

Inhabits Georgia and East Florida.

Cabinet of the Academy.

Body spheroidal, somewhat oval, glabrous, polished, black; *head* longitudinally semi-oval; *eyes* sessile, near the base of the head each side, remote; *feet* hairy, pale testaceous, subequal, shorter than the body.

I found this species several times under stones, &c. It is sluggish in its movements, like other species of this genus; when alarmed or in danger the feet are thrown forward together over the mouth, and the whole of the thorax is then deflected upon the anterior part of the body; in this state the general form is a solid oval.

GENUS BDELLA. *Latr.*

Palpi elongated, terminated by setæ; rostrum conic; eyes four; posterior feet longest.

SPECIES.—B. **oblonga*. *Body* oblong-oval, bright red, paler in the middle and beneath, with a few scattered hairs; *rostrum* nearly half as long as the body, with two or three pairs of stouter hairs; *palpi* four jointed, resembling arms; first joint destitute of hairs and longer than the others conjunctly; second and third joints very short; fourth joint longer than the two preceding ones, attenuated towards the base and truncated at tip, with several short hairs and two terminal setæ longer than itself, of which the inner one is rather shorter; *feet* hairy, subequal, pale, the posterior ones rather longer.

Length rather more than one-twentieth of an inch. Found in Georgia, under stones, under bark of decaying, trees, &c. in rather moist situations.

GENUS **IXODES.** *Latr.*

Palpi short, simple, valvular, forming with the haustellum a short rostrum; mandibles none; feet with a pedunculated pulvillus and two nails; eyes obsolete or wanting.

Species—1. I. **annulatus*. *Body* oval, pale reddish-brown, tinged with sanguineous, particularly behind, and with several longitudinal and oblique, black, abbreviated lines, scattered punctures, and three abbreviated, longitudinal impressed lines behind; *rostrum*, with the *palpi* dilated, rather suddenly contracted at base, and annulated more prominently beneath with about two elevated lines, which on the sides produce an angulated appearance, much shorter than the haustellum, rounded at tip; *haustellum*, the two superior organs emarginate at tip, exterior division dentate beneath, inferior organ with numerous resupinate teeth resembling fenestrate punctures; posterior to the origin of the palpi above is an orbicular, obscure assemblage of punctures resembling eyes; black dorsal lines of the male somewhat regular, consisting usually of a dorsal line divaricating before, and behind, the middle, furnishing a branch each side, which at the tip of the abdomen is confluent with a lateral line, which also branches off in two or three short lines towards the feet; *feet* with a short robust nail, and a reclivate pedunculated pulvillus and nails.

Found in considerable numbers on a *Cervus Virginianus*, in East Florida.

2. I. **orbiculatus*. *Body* nearly orbicular, slightly narrower before, punctured, ten or twelve longitudinal, abbreviated, impressed lines on the posterior margin, marginal impressed line none, two longitudinal indented lines before the middle; *head* transverse subquadrate, posterior edge very obtusely rounded, the posterior angles complying with the general curve; *palpi* oblong, sublinear.

Cabinet of the Academy.

Found inhabiting *Sciurus capistratus* of the Southern States.

3. I. **crenatus*. *Body* ovate, with distant deeply impressed punctures, posterior margin lobated by ten or twelve profoundly indented lines, which are abbreviated by an impressed submarginal line, which becomes gradually obsolete before the lateral middle; posterior edge crenulated; *thorax* none, distinct; *head*, posterior edge transversely rectilinear, angles slightly arquated backward and rounded at tip; *palpi* oblong, sublinear and regularly rounded at tip.

Cabinet of the Academy.

Found in the Southern States, the colour is reddish, sometimes slightly varied with whitish, particularly behind, and the lobate divisions of the posterior margin are sometimes whitish above, and the disk is obsoletely lineated with black.

4. I. **erraticus*. *Body* oblong-ovate gradually narrowed before, sides hardly arquated, with distant punctures, those behind more deeply impressed, posterior margin with ten or twelve impressed lines which are abbreviated by a submarginal impressed line, two abbreviated lines before; *head*, posterior edge transversely rectilinear, angles extended backward abruptly, and subacute; *rostrum* rather short; *palpi* oval-orbicular.

Found in the Southern States; the colour is reddish or ferruginous, with acute black lines.

5. I. **variabilis*. *Body* oblong-ovate, gradually attenuated before; sides hardly arquated; a few remote deeply impressed punctures not more numerous behind; posterior margin with about twelve impressed, abbreviated lines; a lateral, impressed, punctured, submarginal line, obsolete behind; two deeply indented, abbreviated lines before; *head*, hind edge rectilinear, angles abruptly a little extended backward, acute; *rostrum* rather short; *palpi* ovate; *colour* reddish or ferruginous varied with white, incisures of the feet white.

Very much resembles the preceding in form; the white of the back is more or less reticulated, and the feet are white above, or only their joints. May not this be I. *lineatus,* if so, my name must of course be rejected.

6. I. **punctulatus*. *Body* oblong-ovate, gradually attenuated before, sides hardly arquated, crowded with impressed confluent punctures; *thorax* destitute of punctures, but with two impressed undulated lines; abbreviated lines of the posterior margin not deeply impressed, almost obsolete; lateral submarginal line deeply impressed, obsolete behind; *head,* hind edge rectilinear, angles abruptly a little projected backward, acute; *rostrum* rather short; *palpi* oval; *eyes* distinct, impressed; *colour* ferruginous, *thorax* white lineated or varied with ferruginous; incisures of the feet white.

Considerably like the preceding.

7. I. **scapularis*. *Body* red, with a few short whitish hairs; *thorax* blackish-red, well defined, with numerous punctures; *tergum,* punctures sparsate, and four or five blackish, obsolete, dilated radii on the disk; a deeply indented submarginal line; no abbreviated marginal lines behind; edge rounded; *head* beneath and above blackish, posterior edge rectilinear, angles abruptly projected backward, very short, acute; *eyes* distinct, deeply impressed; *rostrum* slightly canaliculate above, paler than the head; *feet* blackish-red, ciliate beneath, terminal joint reclivate near the tip on the anterior edge; ori-

gin of the anterior ones, armed behind with a large acute spine.

Rather common in forests, and frequently found attached to different animals.

8. I. **fuscous*. *Body* fuscous, ovate, punctured; *tergum* with a few black, obsolete lines, and a profoundly indented submarginal line, posterior marginal impressed line none; no distinct thorax; edge rounded; *head*, posterior edge rectilinear, angles not prominent beyond the rectilinear edge; *eyes* not visible; *palpi* suboval, terminal joint rather longer than the preceding one.

Cabinet of the Academy.

A common species.

GENUS HYDRACHNA. *Mull. Latr.*

Rostrum advanced, conic; mandibles none; palpi projecting, terminated by a moveable appendage; body subglobular; feet natatory.

SPECIES.—H. **triangularis*. *Body* white; *eyes* two, sanguineous; *tergum* with a black triangular spot near the eyes, posterior portion black, with a white dorsal line terminating in the cloaca.

The specimen, from which this portion of a description was taken, I found in *Unio cariosus*, in which, possibly, it had adventitiously effected a lodgement.

GENUS LIMNOCHARES. *Latr.*

Rostrum hardly prominent; palpi incurved, simple; mandibles none; feet natatory.

Species.—L. **extendens*. *Body* ovate, red, minutely lineated; *tergum* with a few indented points; *beneath*, origin of the feet paler red; *feet*, second and third pairs ciliate with very fine and long hairs, posterior pair destitute of cilia.

Length nearly three-twentieths of an inch.

A common species, inhabiting stagnant pools, &c. in forests, and shady places. The posterior feet being destitute of cilia, are only useful in walking; when the animal is swimming, they are extended behind, without distinct motion. The eggs are globular, surrounded by a white gluten, and are deposited on almost any object indifferently, from two hundred to three hundred in number, arranged somewhat symetrically in parallel, rectilinear, or undulated series. I have found them about the middle of May.

GENUS LEPTUS. *Latr.*

Feet six; trophi forming a capitate body; palpi conic, quadriarticulate; an obtuse tube, subconic, advanced; body soft.

Species.—1. L. **aranei*. *Body* oval, red, with short, distant hairs; *head* whitish, somewhat rounded, contracted at base and acute at tip; *palpi* white, a little hairy, rather surpassing the tip of the head; *tergum* with a deeper red eye on each side over the interval between the anterior and second pairs of feet, anteriorly indented, and with two lines each of four or five indented points.

Length one-thirtieth of an inch.

Cabinet of the Academy.

Of this species, I have found a specimen adhering near the base of the palpi of an *Aranea*

The head-like process, is sometimes retracted so as to be not prominent, but is not long withheld in this position. The body is somewhat contractile, not perceptibly as regard its length, but in its breadth, by an irregularly undulated motion of the edge.

2. L. **hispidus*. *Body* suboval; *head* with a distinct neck; *palpi* more robust at base; *feet* elongated, much longer than the body, filiform and furnished with numerous robust, incumbent, flexible setæ, about twice the diameter of the leg in length.

My Cabinet.

I took no less than ten of these animals from a *Phalangium*, to which they adhered very strongly; when feeding, they often are supported only by the rostrum and palpi, the body and feet being elevated so as to be sometimes perpendicular to the supporting surface.

GENUS OCYPETE. *Leach.*

Feet six; mouth rostrated, porrected, with mandibles; palpi elongate-conic, with a moveable appendage at base; body soft; eyes two.

SPECIES.—C. **comata.* *Body* subtriangular, very obtusely rounded behind, hirsute, and narrowed by an arquated line to the rostrum; *rostrum* short, narrowed and emarginated at tip; posterior feet longer than the body, and with much longer hairs than those of the body.

Inhabits several species of *Tipula.*

This is readily distinguishable from the O. *rubra Leach,* by the elongated hairs of the feet. The specimens in my possession, are so disposed that the trophi cannot be examined, I therefore refer them to this genus by analogy, drawn from habit, &c.

Analysis of the Blue Iron Earth of New Jersey, made at the School of Mines at Paris, in the year 1819, *by* LARDNER VANUXEM.—*Read, March* 13*th,* 1821.

This is the same mineral that was examined by Judge Cooper, and an account of which was published by him in the first volume, (second series) of the Transactions of the Philosophical Society of Philadelphia. He considered it to be an Hydrate of the

VI

Say on Myriapoda of U. States

Family of SEPIEDEA. Leach.

2. SEPIA *octopa.* Peron. Very small.

Inhabits the island of Dorre, Shark Bay.

This species can hardly be the *octopus* of Lin. I propose, therefore, the name of *Peronii* for it.

3. SEPIA *rugosa.* Bosc.—I do not think that our species is the same with that described by Bosc; I therefore propose for it the name of that naturalist, *Boscii.*

4. SEPIA *varietas.* Peron.

Inhabits the small island of Dorre.

The shores of King's island were covered with Sepiæ, many of which were living. We there observed also many groups of their eggs.

REFERENCE TO THE PLATES.

Plate 6. LEACHIA CYCLURA.
Plate 7. LOLIGO BARTRAMII.
  fig. 1. lateral view.
  " 2. dorsal view.
  " *a. b.* sections of the arms magnified, exhibiting front and lateral views of the suckers.
  " *c.* a portion of the skin of the body magnified.
  " *d.* beak.
  " *e.* bone.
  " *f.* transverse section of the bone.
Plate 8. LOLIGO PEALEII.
  fig. 1. dorsal view.
  " 2. side view.
  " *a.* bone—front view.
  " *b.* bone—side view.
  " *c.* beak, sphincter, and appendices.
  " *d. d. d.* suckers, magnified
Plate 9. fig. 1. ONYKIA CARRIBÆA, dorsal view.
  " 2. do. do. lateral view.
  " *a. b.* bone—profile, and front views.
  " *c.* transverse section of the bone.
  " *d.* extremity of one of the long arms magnified.
  " *e.* hook and sucker, magnified.
  " 3. ONYKIA ANGULATUS.

Descriptions of the Myriapodæ of the United States.

By Thomas Say. Read November 21st, 1820.

CLASS MYRIAPODA.

ORDER 1. CHILOGNATHA.

GENUS JULUS.

Body serpentiform, cylindrical; antennæ inserted on the anterior margin of the head, second joint longest, terminal one minute; eyes distinct; feet many.

Species. 1. J. *impressus. Brown, a series of lateral black dots, beneath yellowish white; ultimate segment mucronate.

My Cabinet.

Body cylindrical, immarginate, above brownish, beneath yellowish-white appearing glabrous; segments each with a lateral black spot, whitish lines and dots sometimes obsolete, a transverse series of longitudinal abbreviated obsolete impressed lines, and beneath the stigmata with impressed, more distinct ones, ultimate segment mucronate, spiracles not prominent; *eyes* rather large, conspicuous, black; *labrum* yellowish white; *antennæ* brownish.

A common species inhabiting under stones, and in humid situations, a variety occurs with a very distinct, acute, longitudinal, dorsal line, and variegated head.

2. J. **punctatus*. *Body* brownish, with an impressed dorsal line, impressed white dots and spots, ultimate segment unarmed.

My Cabinet.

Body cylindrical, immarginate, above dark brown, glabrous, an obsolete, dorsal, whitish, slightly impressed, acute line; *segments* each with a white dot on either side above, and a larger transversely oblong lateral one, which is gradually more completely bisected on the posterior segments into two distinct dots, which on the terminal segments resemble the dorsal ones, ultimate one abruptly narrower than the preceding and truncated, anterior segments attenuated to the head, which is wider than the anterior one, anterior segment as long as the second and third ones conjunctly; spiracles somewhat prominent; *eyes* very distinctly granulated, subtriangular, black; *head* dark-brown, labrum white.

Inhabits the same situations, and is similar in general form to the preceding species, but is less common and rather smaller. The dots, spots and lines are for the most part slightly impressed.

3. J. **annulatus.* Body with numerous, elevated, obtuse lines, of which four are above the stigmata; ultimate segment glabrous, unarmed.

Inhabits the southern States.

My Cabinet.

Body cylindrical, immarginate, above brownish with a slight tint of red, immaculate, beneath yellowish white; *segments* each with about fifteen elevated obtuse lines, of which four are equal dorsal, a pyriform, larger, oblique one on the stigmata, and about ten decreasing in size to the feet, anterior segment as long as the three succeeding ones conjunctly and glabrous, posterior one glabrous reddish brown, as long as the two preceding ones, united and obtusely rounded at tip; *head* whitish before; *antennæ* white; *eyes* transverse linear, black; *vertex* not distinctly impressed.

A rather common species in the southern states, inhabiting with the preceding and in decaying wood.

4. J. **lactarius.* Body fuscous with a rufous dorsal line, numerous elevated lines, of which about fifteen are above the stigmata, ultimate segment unarmed.

My Cabinet.

Body cylindrical, above fuscous, with a dorsal rufous vitta and an obsolete one each side; beneath yellowish white; *segments* each with numerous, elevated, longitudinal lines, of which about fourteen are above the sigmata and about fourteen below, becoming smaller to the origin of the feet, line of the stigmata geminate, anterior segment as long as the second and third conjunctly, and glabrous on the anterior half, posterior segment not so long as the two preceding ones united, widely rounded at tip; *head* glabrous; *antennæ* reddish-brown; *eyes* triangular, granulated, deep black.

Not uncommon under stones &c. and when irritated discharges a lacteous globule from the lateral portion of each segment, diffusing a strong and disagreeable odour.

5. J. **marginatus*. Body cylindric glabrous, blackish, segments with a rufous margin; ultimate segment unarmed.

My Cabinet.

Body cylindric, glabrous, polished, blackish, beneath pale reddish; *segments* margined behind with rufous, anterior segment as long as the three succeeding ones conjunctly and entirely margined with rufous, second segment slightly, and obtusely angulated at the lateral tip of the anterior one, ultimate segment as long as the two preceding ones united narrowed to the tip which is rounded; *head* with an impressed line which is obsolete on the front; *labrum* pale, deeply and widely emarginated at the tip, with a submarginal, infracted series of ten or twelve punctures furnishing hairs, tip ciliated, reddish, obsoletely dentate.

Length more than three inches.

A very large species inhabiting decaying wood, &c. when irritated it diffuses an odor like that of muriatic acid, and is infested by *Gamasus Juloides*. It varies in colour; the margin of the segments and all beneath are sometimes white, the ultimate segment is sometimes almost acutely angled at tip, and there is a distinct lateral series of black dots.

6. J. **pusillus*. Body with a lateral series of black spots, terminal segment unarmed.

Inhabits the middle States.

My Cabinet.

Body cylindrical, immarginate, above pale, obsoletely reticulate, and varied with reddish; a lateral series of large black spots, numerous longitudinal, parallel, impressed, acute lines beneath the stigmata becoming gradually shorter to the origin of the feet; beneath whitish; *head* white beneath the antennæ; *antennæ* two joints preceding the last somewhat dilated, not attenuated at their bases, nor separated by a contraction; *eyes* black, longitudinally sublunate; *ultimate segment* unarmed, longer than the penultimate one, rounded at tip and blackish.

Length nearly half an inch.

Resembles *J. impressus* in the character of lateral impressed lines, but is distinct by the unarmed terminal segment; I found it rather common on the Eastern shore of Virginia under the bark of *Pinus variabilis*.

Genus POLYDESMUS, *Latr.*

Body elongated, linear depressed, segments with a prominent margin; eyes obsolete; feet many; antennæ, second joint shorter than the third.

Species. 1. P. **serratus*. Segments with a double transverse series of slightly raised squamiform elevations.

My Cabinet.

Segments depressed above, with four minute serratures each side, first segment transversely oblong oval, somewhat angulated on each side behind, second, third and fourth segments with but three serratures, first rather longer than the second, and with a single obsolete serrature near the posterior angle, each segment with a double transverse series of twelve slightly elevated, squamiform divisions, anterior segment with but a single series; *head* glabrous, an impressed longitudinal line on the vertex; *antennæ, feet* and *terminal segment* hairy; *colour,* above reddish-brown, beneath yellowish white.

Common in similar situations with the preceding.

Julus Virginiensis of Drury, is also rather common, it appears to be synonymous with *J. tridentata* of authors. I have found specimens double the usual size, in the southern States. It seems also to vary in having only the second joint of the feet mucronate, and in being destitute of the robust ventral spines between the feet.

2. P. **granulatus*. Segments granulated, granules subequal, arranged in four series.

My Cabinet.

Body with short hair, pale tinged with red beneath, and feet paler; *head* dusky with short dense hairs; *labrum* whitish; *segments* somewhat convex, granulated, granules rounded, or longitudinally oblong-oval, elevated, obtuse, approximate and arranged transversely in about four nearly regular series, anterior segment transversely oval, narrower than the head or second segment; *stigmata* elevated.

Found in Pennsylvania.

GENUS POLLYXENUS, LATR.

Body membranaceous, pennicillate with setæ at tip; antennæ inserted under the anterior margin of the head.

SPECIES. P. **fasciculatus.* Body pale brown, linear, incisures ciliated, fasciculated each side; head deeply ciliated before.

Inhabits the Southern States.

Segments smooth, ciliate at the incisures and fasciculate with brown setæ each side, terminal pencil cinereous; *head* semiorbicular, depressed, deeply and densely ciliated on the edge with setæ; *eyes* small, oval, prominent, placed obliquely in the middle of the lateral margin; *antennæ* very short, thick reddish-brown; feet white.

Length rather more than one tenth of an inch.

Beneath stones &c. in humid situations, not very common.

ORDER 2. SYNGNATHA.

GENUS LITHOBIUS, *Leach.*

Antennæ conico-setaceous; dorsal scuta alternately much shorter and concealed.

SPECIES. L. **spinipes.* Joints of the feet with short spines at tip, and a single much longer one beneath the tips.

My Cabinet.

Body chesnut brown, polished, impunctate, with short sparse hairs; *segments* with reflected lateral edges, first one shortest, transverse, the second quadrate with rounded angles, five or six posterior ones each narrowed behind and emarginate on the hind edge, the posterior angles of those near the caudal segment more acute, caudal segment truncate conico-cylindric; *antennæ* pale testaceous, with dense, very short, rigid hair, terminal joint as long as the two preceding ones conjunctly; *feet* pale testaceous, joints spinous at tip, an elongated spine at the tip of each beneath, anterior pair shortest, posterior longest and more robust; *labium* longitudinally indented, impunctate, teeth of the tip black.

Length, more than one inch.

Very common under stones &c. The specimen from which this description was taken has but thirty joints to the antennæ.

Genus CERMATIA.

C. *coleoptrata,* Villiers. Is an inhabitant of the Southern States; we observed it both in Georgia and East Florida. It is probable, that, like a vast number of the insects now common in our country, it has been introduced by our shipping from abroad.

Genus SCOLOPENDRA.

Antennæ conico-setaceous; dorsal scuta subequal; eyes, four each side, hemispherical.

Species. 1. S. **marginata.* Body obscure olivaceous green; segments margined with dark green: *head* castaneous.

Inhabits the Southern States.

My Cabinet.

Body obscure olivaceous green, beneath whitish or fulvous; *segments* impunctured, margined each side and behind with black-green, first, third, and fourth shortest, five or six terminal ones more distinctly margined; *head* chesnut colour; *antennæ* green; *feet* pale, tipped with blueish green, nails blackish; *posterior feet* hardly longer than the three terminal segments of the body conjunctly; length of the joints hardly equal to double their breadth; first joint spinous beneath and within, and armed with an acute, strong, projecting angle at the tip.

Length more than two and an half inches.

Rather common in Georgia and East Florida; it is also found in the West Indies, but does not occur so far north as Pennsylvania.

2. S. **viridis.* Body blueish green; base of the feet and all beneath, whitish.

Inhabits Georgia and East Florida.

My Cabinet.

Body above blueish green immaculate; posterior segments margined with pale yellowish; *mandibles* yellowish-white; *feet* whitish at base, terminal joints pale blueish-green, posterior pair pale yellow.

Length, about two inches and an half.

I have not known this species to inhabit so far north as Pennsylvania.

GENUS CRYPTOPS. *Leach.*

Anterior edge of the labium not denticulated, hardly emarginate; eyes obsolete; posterior pair of feet longest, basal joint unarmed.

SPECIES. 1. C. **hyalina.* Body much depressed, white, with a double blackish internal line; hind feet, with the third joint five toothed.

Inhabits Georgia and East Florida.

My Cabinet.

Head reddish-brown polished, impunctured, with scattered hairs, no impressed clypcal line; *antennæ* reddish-brown hirsute, joints sessile, cylindric, terminal ones rounded; *body* white, polished, two black internal lines, a few sparse hairs, impunctured; *feet* with a few hairs; *posterior feet* reddish-brown, first joint not so long as double its breadth, and, with the second joint, armed with numerous short rigid setæ, with an indented line above, third joint four or five toothed within, fourth joint about two toothed.

Length three-fifths of an inch.

Numerous specimens of this species occurred beneath the bark of a decaying Live Oak (Q. *virens*) on the river St. John, East Florida. The appearance of the posterior feet approximates it to Scolopendra; but the eyes exclude it from that genus, as the number of feet does from Lithobius.

2. C. **sexspinosa*. First joint of the posterior feet two spined.

My Cabinet.

Body reddish-ferruginous, punctured; second segment shortest, then the fourth and sixth, terminal one indented at tip, and armed beneath with a double, prominent, robust spine; *antennæ* with very short dense hair, joints oval, separated by a very short peduncle; *feet*, two moveable short spines at the exterior tip of the fourth joint, fifth joint with one beyond the middle and one at tip; *posterior feet*, the base beneath a conspicuous, elevated, compressed, acute, sub-triangular spine, and a smaller one on the inner side above, nearer the middle.

Not uncommon in decaying wood. It varies in being impunctured beneath. I have a fortuitous variety, of which the antennæ are clavate and five-jointed.

3. C. **postica*. Terminal segment of the body longest; posterior feet very short and robust.

Inhabits Georgia and East Florida.

My Cabinet.

Body rufous, paler beneath, punctured; segments with two impressed, longitudinal lines above, and a deeply impressed one beneath; ultimate segment longer than the two preceding ones conjunctly, with two obsolete impressed abbreviated lines at base, and an intermediate more distinct continued one; *posterior feet* remarkably robust, hardly longer than the ultimate segment; nail very robust, as long as the two preceding joints conjunctly.

A very remarkable species, distinguished at once from all others, by the very thick and short posterior pair of feet, the nails of which cross each other, and are much used by the animal in its defence.

GENUS GEOPHILUS.

Posterior pair of feet not remarkably longer than the others; eyes obsolete.

SPECIES. 1. G. **rubens*. Body attenuated before and behind; terminal pair of feet hardly longer than the preceding pair.

My Cabinet.

Body broadest in the middle, impunctured, red, with short hairs more numerous on the antennæ and feet; segments with two longitudinal impressed lines, and a transverse acute one near the base of each, ultimate segment somewhat longer than the preceding, narrowed and rounded at tip; *head* beneath, with a blackish spot each side at the base of the mandibles, and another at base of the terminal joint; *labium* with a profound fissure, not dentated; *antennæ,* terminal joint longer than the preceding ones, and of equal diameter, not attenuated; *feet* subequal.

Very common in decaying wood, under stones, &c.

2. G. **attenuatus*. Body attenuated from the head, posterior feet longer than the others.

Inhabits the Southern States.

Body broadest before and gradually attenuated to the tail, reddish-brown, with a few hairs; *head* and *base* of the *mandibles* above punctured; *antennæ* setaceo-filiform, with numerous short hairs; *feet* paler than the body, posterior ones longer than the others.

Found under stones, &c.

A Description of some new species of Plants, recently introduced into the gardens of Philadelphia, from the Arkansa territory. By THOMAS NUTTALL. *Read, August 7th,* 1821.

1. COREOPSIS **tinctoria*, foliis radicalibus pseudobipinnatis, foliolis subovalibus integris glabris, superioribus pseudopinnatis laciniis linearibus; floribus binatis ternatisve; calicibus exterioribus brevissimis; radiis bicoloribus; seminibus nudis immarginatis.

Habitat. Throughout the Arkansa territory to the banks of Red river, chiefly in the prairies which are subject to temporary inundation.—Flowering, from June to October.

DESCRIPTION. Annual and biennial, stem erect, smooth, and much branched, extremely variable in magnitude, being from one to five feet high. The

VII

Length nine-twentieths of an inch.

Width four-fifths of an inch.

Inhabits the southern coast.

Cabinet of the Academy and Philadelphia Museum.

Is often cast ashore in old wood, which it penetrates. It bears some resemblance in form to the shell represented in the Encyc. Method. t. 170, fig. 5, &c. Its longitudinal sulcus is very similar to that of *P. crispata*, but in many other respects it is closely allied to *P. pusillus*, and like that species, it is distinguished by two elongated lamellar plates, which cover the sutures of the posterior junctions of the valves.

TYPE AND CLASS,

ANNULOSA CIRRIPEDES.

FAMILY BALANIDEA.

*CONOPEA.

GENERIC CHARACTER.

Shell sessile, fixed, composed of two cones joined by their bases, the lines of junction carinate each side; inferior cone entire, attached by its anterior side and tip to marine bodies; superior cone formed of six united pieces, with an aperture at the summit, closed by a quadrivalved operculum.

Species.

C. *elongata. *Shell* elongated before and behind into compressed processes; posterior valves of the operculum, more prominent and truncated at tip.

Inhabits the southern coasts on *Gorgonia virgulata. Lam.*

Cabinet of the Academy and Philadelphia Museum.

Anterior and posterior processes very much compressed, acutely edged above and beneath, and usually as long as the body of the shell; shell generally covered with a dirty-brown epidermis, beneath which it is white, with rufous clouds and lines; posterior valves of the operculum larger, more prominent, truncated or widely emarginate at tip.

Balanus galeatus an inhabitant of the Asiatic ocean, a species long known, and described by various authors, is congeneric with the species here described. The peculiar characters of these shells, their general appearance and their habitat, will not admit of their being referred to the genus Balanus ir a perfectly natural arrangement. I have therefore thought it necessary to frame the present genus for their reception.

The anterior process of the *elongata* is generally acuminated and longer than the posterior one, which is more compressed, and is generally more or less elevated from the branch of the Gorgonia, upon which the anterior process and the basal cone are firmly attached.

Bruguiere informs us that the *galea* is obtained from great depths in the ocean only; but I have found the *elongata* in considerable numbers in inlets of the bay of Charleston, on Gorgonia, which at the recess of the tide was visible on the surface of the water.

This species, like the *galea*, is often found coated over with the cortical envelope of the Gorgonia, and the animal destroyed, probably by its encroachment.

CORONULA, *Lam.*

SPECIES.

C. **dentulata*. *Shell* depressed-conic; *base* oval; height equal to about one-third of the base; *valves* and *interstices* smooth, the anterior valve largest, and the posterior one smallest; *operculum* transversely striated, the posterior pair of valves with a submarginal impressed line, from which to the edge, are drawn three or four other impressed lines.

Found on the Clypeus of Limulus Polyphemus.

Collection of the Academy and Philadelphia Museum.

The posterior margins of the posterior valves of the operculum, are divided by the impressed lines, into three or four broad, flat, dentiform divisions, which, however, but simply crenate the edge.

Geological Sketches of the Mississippi Valley, by Edwin James. *Read Oct.* 8, 1822.

We offer a hasty sketch of the Geology of the Mississippi Valley, in anticipation of a more detailed account, which will be given in the Journal of the Exploring Expedition, about to be published in this city. In the accompanying sections, delineated by Major Long, it will be perceived little attention has been paid to the horizontal scale. Wishing to exhibit, in a small compass, the outline of our idea of the structure of different groups of mountains, some wide and uninteresting plains as that between 5° and 12° W. in the northern, and that between 11° and 13° in the southern section, have been omitted. Particular attention has been bestowed in adapting the delineations to the scale of elevation, according to such estimates as we have had the means of making.

The inclination indicated by the lines between the formations is not to be considered applicable to all the strata constituting those formations; as, in the instance of the coal in the southern section of the Alleghanies, the strata of sandstone and bituminous slate are nearly horizontal, but they occupy the several stages of elevation indicated by the inclined line in the section. The lines, therefore, should be considered as indicating the position of formations rather than the inclination of strata.

In the southern section of the Ozark mountains, the inclination of the strata is usually towards the south or south-east, but more irregular in direction than in the Alleghanies.

VIII.

Description of a new Species of TRILOBITE. *By* J. J. BIGSBY, M. D. *Read March* 15, 1825.

I beg to present to the Academy, a description of a new species of TRILOBITE, found at Lockport in the state of New York, in the black, shaly, horizontal limestone forming the lower part of the ravine by which the western Canal ascends the "Parallel Ridge" of Lake Ontario. I am not prepared to assign to this limestone its exact place in the series of geological formations. It is above the saliferous sandstone, and therefore more recent than the rocks best known as abounding in trilobites.

In imitation of the only systematic writer on this branch of the crustacea, I have named this species after the discoverer, Lieut. Bolton, Royal Engineers.

PARADOXUS.

P. *boltoni.* Pl. xxiii. Oval, blind; surface with small tubercles, and striæ; clypeus rounded before; exterior angle extending in a broad spine; abdomen fourteen jointed; segments recurved, falcate; tail membranaceous and serrate.

The shape of this individual is oval, approaching to ovate; it is moderately flat; the whole length is five inches and four-fifths; its breadth across the middle is four inches and nine-tenths; wherever the cutis is not removed, it is covered profusely and irregularly with small tubercles. The denuded portions in this specimen for the space of three quarters of an inch from the external margin, is, in a very small degree, depressed, and displays a number of broken and continuous striæ, parallel to that margin. There are no traces of organs of vision. The buckler is nearly the segment of a circle; anterior edge in the present case imperfect; it is four inches and three-fifths broad, and one inch and one-ninth long at the centre; it joins the abdomen by a somewhat sinuous transverse line; cheeks and front of equal breadth; the former are flat, but rise at the sharp ridge by which they unite with the front; they are triangular in shape; their outer angles terminating by an acute tip. The striæ mentioned above are here not quite parallel to the external border; the front is a shallow depression, rounded, but tapering anteriorly; it is intersected from above, on each side obliquely towards the mesial line, by a ridge bifurcating downwards; another smaller ridge nearly bisects the front perpendicularly.

The abdomen and post abdomen are not distinct. The abdomen exclusive of the cauda, is three inches and a half long; it exhibits fourteen costæ, varying indiscriminately from one-fifth to one-fourth of an inch in breadth, except the three inferior ones, which are rather broader; they occupy the whole abdomen without membranous interspaces, and are separated by a black sulcus, not always well defined, and sometimes a line in diameter; each costa is canaliculated from the upper and inner angle to the tip.

The middle lobe is separated from the lateral by a shallow rude sulcus, which, however, does not always destroy the continuity of the costæ* as they cross it; this lobe is slightly convex, one inch and a half broad at the top, and so continues to the sixth costa, after which it gradually contracts until at the bottom it is one-fifth of an inch broad, subsiding insensibly into a flat membrane-like surface; its longitudinal sulci pass one inch further downwards, and, expanding a little, unite with the costæ on each side, the posterior edge of the space included by them being dentated.

The lateral lobes are quite flat, one inch and a half broad anteriorly, and by gradual prolongation become at the fourth costa one inch and four-fifths in breadth; this dimension is maintained to the ninth articulation, when it slowly decreases to one inch at the bottom; the recurvature of the costæ is gentle in the upper eight, but thence increases rapidly. Their extremities, advancing two-fifths and four-fifths of an inch into the imbedding rock, are falcate, with their raised black edges, and clearly marked points.

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* Although incorrectly represented in the drawing as always destroyed.

The characters which seem to place this trilobite in the genus Paradoxus of Brongniart, are, its flatness, the outline of the buckler, the want of eyes, the prolongation of its costæ beyond the membrane they are imagined to support; a fact, in that author's opinion, of primary importance; the form and direction of their falcate extremities; the complete investment of the abdomen by the costæ; the relative sizes of the lobes of the abdomen; and finally, the serrated membranous fringe surrounding its lower parts.

The specific distinctions are chiefly found in the shape; in the tubercles and striæ of the cutis; the form of the front;* the gentleness of the recurvature of the costæ, and in the form of the lower end of the middle lobe of the abdomen.

On a new Species of MODIOLA. *By* THOMAS SAY.

Read April 19, 1825.

Amongst a number of marine shells from the island of Minorca, presented to the Academy by Dr. Alexander Montgomery of the U. S. Navy, is a single valve of the Pecten *nodosus*, Linn. on which were several elevations that on a cursory glance presented an appearance not unlike the

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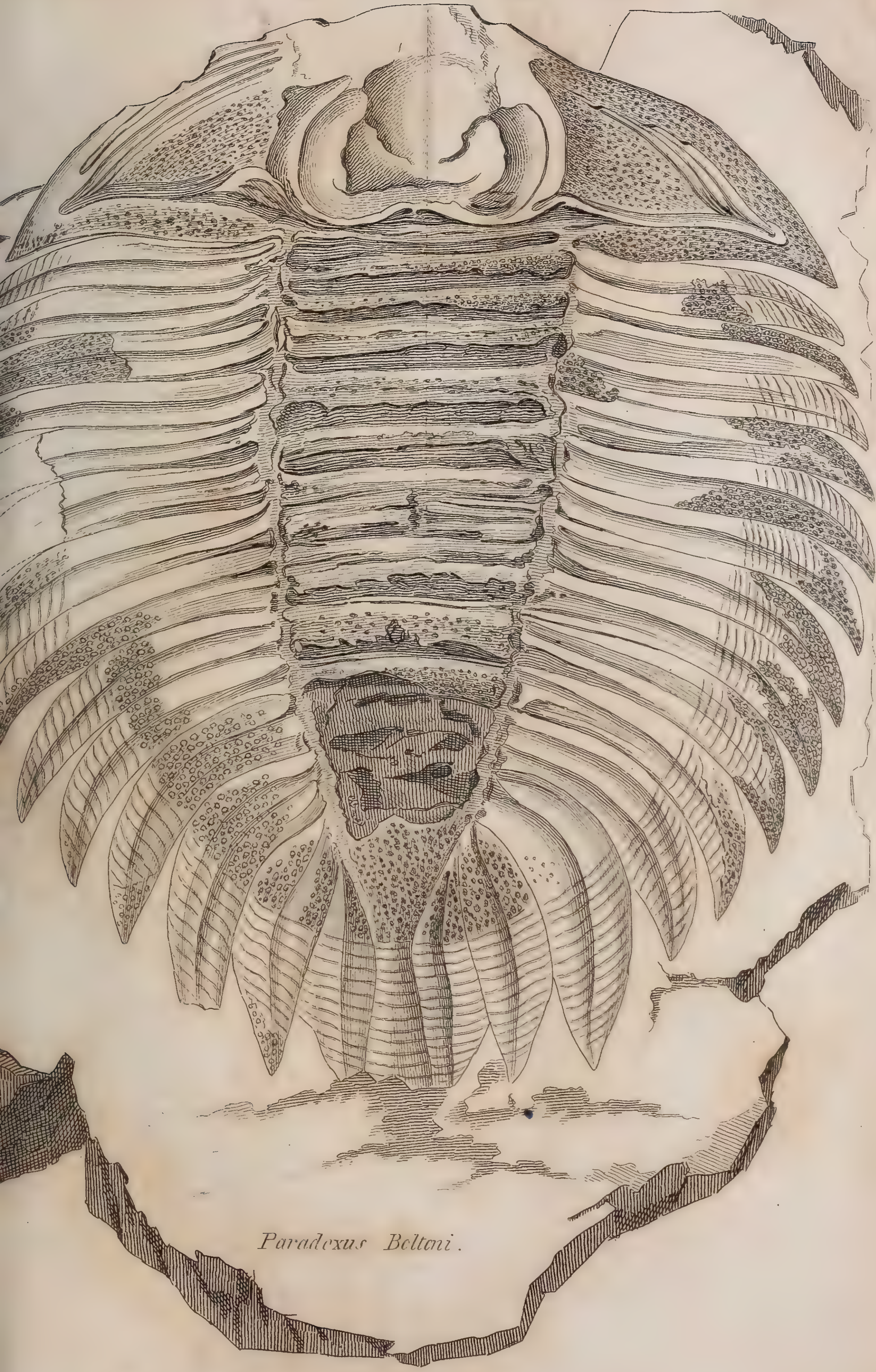
* Very undefined in this individual.



Paradoxus Beltoni.

C A Lesueur delin

CONSPECTUS CRUSTACEORUM,

QUÆ IN ORBIS TERRARUM CIRCUMNAVIGATIONE,

CAROLO WILKES

E CLASSE REIPUBLICÆ FŒDERATÆ DUCE,

LEXIT ET DESCRIPSIT

JACOBUS D. DANA.

EX ACADEMIÆ ARTIUM SCIENTIARUMQUE AMERICANÆ NUNTIIS.

CANTABRIGIÆ:
TYPIS METCALF ET SOC. UNIV. TYPOGRAPH.
1847–49.

From the American Journal of Science and Arts, 2nd Series, Vol. XI.—May, 1851.

ON THE CLASSIFICATION OF THE MAIOID CRUSTACEA OR OXYRHYNCHA.

By JAMES D. DANA.

The Maioidea are usually divided into three tribes, characterized by the relative lengths of the legs, viz., the *Macropodinea*, the *Maiinea*, and the *Parthenopinea*. A character of the kind here alluded to is of little importance as a distinction in classification, unless it is indicative of other more fundamental differences. The third of these subdivisions seems to be properly and distinctively a natural group. But the first two are essentially identical in all points, excepting the greater or less elongation of the eight posterior legs. The mouth, the antennæ, eyes, branchiæ, and other parts, afford no ground for separating them: moreover, the transitions are gradual and numerous. Libinia and Doclea pass into one another through Libidoclea, and these three genera are more closely related than Doclea and Inachus. Eurypodius contains a species with short legs; and the genus Oregonia, very near Eurypodius, has no longer legs than some of the admitted Maiinea. The mere length of the legs, if regarded, thus breaks up true natural groups.

De Haan sustains the separation of the Inachidæ (Edward's Macropodinea, Doclea and Latreillia being excluded,) on other grounds, acknowledging the unimportance of the characteristic derived from the legs. As in other departments of Crustacea, he basis his distinctions mainly on the maxillæ or maxillipeds. Thus his Maia, Pisa and Doclea groups include species having the fourth joint of the outer maxillipeds articulated with the inner apex of the third joint; while in his Inachus group, the articulation is with the summit of the third joint. This distinction would separate the intimately related genera Eurypodius and Oregonia, as this joint in the latter has the ordinary Maia form. On examining Eurypodius it is found that the peculiarity of the third joint referred to arises simply from its being lengthened or extended along the inner side, so that the true apical margin slopes backward and outward. The fourth joint is articulated with the same part normally in both, and the only difference is in the greater or less inclination of the summit margin, when greatest it approximating to longitudinal. The little importance of the distinction based upon the maxillipeds among the Cancroidea as well as Maioidea is shown by numerous instances. Even the single genus Xantho presents wide variations, as the joint may be either transverse or oblong. (Compare Xantho Orbignii, *Edw.* with other species.) The system of De Haan for this reason, although developing some new relations, contains many ambiguities and incongruous associations, notwithstanding the learning of its author, the remarkable skill and accuracy of his work, and the vast additions of facts he has made to the science. We have admired the wonderful fidelity of his plates, the thorough spirit of investigation displayed through his magnificent volume, and the judgment with which he has seized upon typical forms in instituting his genera. Yet we can not but object to his defective system of arrangement and description, by which his types are often thrown into wrong associations, and the groups they typify are laid down with false limits,—the characters to be derived, (as the system of Milne Edwards illustrates,) from organs of real importance in the species, being sacrificed in a great degree to indications from the maxillæ or maxillipeds.

In the distribution of the Maioidea, we disregard, for the reasons stated, the older subdivisions of Macropodinea and Maiinea, and arrange their species into families and subfamilies as below, according to the characters of the eyes, antennæ and other organs, using these characters, in the order, as far as we can judge, of their relative bearing upon the functions or habits of the species.

De Haan has separated on good grounds *Latreillia* from the other genera, having shown that the posterior legs are short, dorsal, and more or less prehensile, as in Dromia, and that the vulvæ have the same position as in that genus (in the base of the feet of the third pair); and he therefore places the genus in the Dromia group. Still, in the number of branchiæ and some other characters, it is like the Maiinea, and it is properly an intermediate type. The outer antennæ are peculiar in being free and cylindrical from the very base, with the second joint much longer than the first, nearly as in the Dromiacea. These last facts with regard to the antennæ are also true of another genus having the posterior legs prehensile, somewhat Dromia-like, although they are not at all dorsal and also resemble the preceding legs. The genus referred to is *Oncinopus* of De Haan. It is apparently intermediate in character between the Maia tribe and Latreillia.

The aberrant form, Oncinopus, (and also Latreillia, if it be not thrown with the Dromiacea,) will naturally belong to a distinct group, and we therefore divide the Maioid Crustacea into three tribes, MAIINEA, ONCININEA and PARTHENOPINEA.

The Parthenopinea have the basal joint of the outer antennæ usually filling a hiatus in the orbit, as in most Cancroidea, and not projecting beyond the eyes, besides being more inward and posterior in position, and free or bounded laterally by sutures; while in the Maiinea this joint lies directly below the eye, projects beyond it, and is commonly soldered to the shell outside of the joint. The Parthenopinea are thus intermediate between the Maiinea and the Cancroid Crustacea, resembling the latter also in their short epistome. The greater length of the anterior legs is not a necessary characteristic. They are also intermediate between the Maiinea and Dromioid species. The genus Trichia, of which De Haan makes one of his grand divisions of the Brachyura, is most nearly related to the Parthenopinea—the orbits, and antennæ, epistome and general form of the body resembling the same in Parthenope. But in its maxillipeds it approaches Dromia, as shown by De Haan.

Telmessus of White appears to belong with the Corystoidea, as the outer antennæ, in connection with the form, indicate.

The following are the Families, Subfamilies and Genera of MAIINEA with their characteristics:

FAM. I. MAIIDÆ.

OCULI RETRACTILES, IN ORBITIS SESE LATENTES.

1. DIGITI ACUMINATI.

A. Carapax oblongus.

𝔄. OCULI PLUS MINUSVE TRANSVERSIM PORRECTI.

α ANTENNÆ EXTERNÆ APERTÆ.

** Rostrum sive elongatum sive breve, porrectum, non tumidum.*

† Pedes 8 postici prælongi.

1. INACHINÆ.—Carapax triangulato-ovatus. Rostrum emarginatum aut integrum.

G. 1. INACHUS, *Fabricius.*—Carapax gibbosus, spinâ præorbitali sive parvulâ sive nullâ, rostro brevi. Pedes 8 postici filiformes, 2dis 3–4-plo longioribus quam carapax post-rostralis.

G. 2. EGERIA, *Latreille.*—Carapax gibbosus, orbiculato-ovatus, rostro sat brevi, paulo reflexo. Pedes 8 postici filiformes longissimi (iis *Inachi* duplo longiores).

G. 3. MICRORHYNCHUS, *Bell.*[*]—Carapax gibbosus, latitudine trans-orbitali parvâ, dente præorbitali nullo, post-orbitali parvulo. Rostrum parvulum, integrum. Pedes 8 postici corpore fere duplo longiores.

2. MACROCHEIRINÆ.—Carapax latè ovatus. Rostrum furcatum. Pedes prælongi. Articulus antennarum externarum 1mus solutus.

G. MACROCHEIRA, *De Haan.*[†]—Carapax gibbosus, orbiculato-ovatus, spinâ præorbitali parvulâ, rostro saliente, cornubus valde divaricatis. Pedes toti validi longi.

†† Pedes 8 postici longitudine mediocres.

† *Pars antennarum externarum mobilis margine orbitæ orta.*

3. MAIINÆ.—Carapax orbiculato-ovatus, rostro prominente, profundè bifido.

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[*] Zool. Trans., ii, 40.

[†] Crust. Fauna Japonica, 88.

G. Maia, *Lamarck.*—Articulus antennarum ext. 1mus spinis duabus longis apicem externum armatus. Spina inter-antennalis elongata, acuta. Tarsus infra non spinulosus.

‡‡ *Pars antennarum externarum mobilis orbitâ omnino exclusa.*

4. PISINÆ.—Carapax triangulato-ovatus, rostro bifido.

1. Pedes 8 postici non valde compressi; articulus 5tus processu infra non armatus.

G. 1. Paramithrax, *Edwards.*—Carapax gibbosus, rostro elongato. Oculi graciles. Articulus antennarum externarum 1mus spinis duabus longis apicem externum armatus (eoque *Maiæ* affinis).

G. 2. Pisa, *Leach.*—Carapax elongatè pyriformis, gibbosus, spinâ præorbitali saliente, rostro longo, vix depresso. Articulus antennarum ext. 1mus angustus. Pedes 2di 3tiis valde longiores.

G. 3. Pelia, *Bell.**—Carapax elongatè pyriformis, gibbosus, spinis præorbitali et post-orbitali carens, rostro longo, vix depresso. Articulus antennarum ext. 1mus angustus. Pedes 1mi 2dis breviores.

G. 4. Lissa, *Leach.*—*Pisæ* affinis. Carapax pyriformis, rostro longiusculo, cornubus laminatis, truncatis, dente præorbitali saliente.

G. 5. Rhodia, *Bell.*†—Carapax pyriformis, paulo depressus, spinâ præorbitali saliente, rostro brevi, acuto. Articulus antennarum externarum 1mus angustus, apicem acutè productus extus unidentatus. Pedes 1mi 2dis breviores.

G. 6. Hyas, *Leach.*—Carapax ovatus, sæpe lyratus, depressus, spinâ præorbitali carens, rostro longiusculo, acuto, depresso. Articulus antennarum ext. 1mus angustus, 2dus depressus, tarsus infra non spinulosus.

G. 7. Pisoides, *Edw.* et *Lucas.*‡—*Hyadi* affinis. Carapax latè ovatus, spinâ præorbitali carens, postorbitali parvâ, rostro longiusculo, acuto. Articulus antennarum ext. 1mus latissimus, 2dus depressus, densè ciliatus.

G. 8. Herbstia, *Edwards.*—Carapax orbiculato-ovatus, depressus, spinâ parvâ præorbitali instructus, rostro brevi, cornubus paulo depressis acutis. Articulus antennarum ext. 1mus angustus, apicem acutè productus, extus uni-dentatus. Pedes 1mi 2dis longiores.

2. Pedes 8 postici late compressi.

G. 10. Thoe, *Bell.*§—Carapax late ovatus, rostro parvulo, bifido, dente præorbitali saliente. Oculi breves. Articulus antennarum ext. 1mus latissimus. Pedes 1mi *maris* 2dis longiores.

3. Articulus pedum posticorum 5tus processu infra armatus.

G. 11. Dehaanius, *M'Leay.*‖—*Hyadi* paulo affinis. Carapax latus, spinâ præorbitali saliente, rostro sat brevi. *Leucippæ* affinis, si oculi non retractiles.

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* Zool. Trans., ii, 35.

† Zool. Trans., ii, 43.

‡ Crust. D'Orbigny's South America 10, pl. 5. The species P. tuberculosus appears to be the Hyas Edwardsii of Bell, Zool. Trans. ii, 49.

§ Zool. Trans. ii, 47.

‖ M'Leay, Smith's Illust. Zool. S. Africa.

** *Rostrum saliens, porrectum, tumidum, apice emarginatum.*

5. LIBININÆ.—Carapax latè pyriformis, tumidus, lateribus altis. Oculi perbreves. Pedes sive mediocres sive prælongi.

G. 1. Libinia, *Leach.*—Pedes mediocres. Carapax dente præorbitali parvulo instructus. Abdomen *maris feminæque* 7-articulatum. Articulus antennarum ext. 1mus latiusculus, extus non dentigerus.

G. 2. Libidoclea, *Edw.* et *Lucas.**—Pedes longi. Carapax spinis plus minusve armatus, dente præorbitali parvo. Articulus antennarum ext. 1mus angustus, apicem acutè productus, extus dentigerus.

G. 3. Doclea, *Leach.*—Pedes prælongi. Carapax spinis plus minusve armatus, dente præorbitali carens. Articulus antennarum ext. 1mus angustus, abdomen *maris* 7-articulatum, *feminæ* 5–7-articulatum.

*** *Rostrum breve, latissimum, bilobatum, porrectum.*

6. PRIONORHYNCHINÆ.—Carapax ovatus, gibbosus. Oculi breves, Fossæ antennales marginem frontalem fere attingentes.

G. Prionorhynchus, *Hombron* et *Jacquinot.*†

**** *Rostrum latum, valde deflexum.*

7. MICIPPINÆ.—

G. Micippa, *Leach.*—Oculi longiusculi. Carapax anticè parce angustior, rostro laminato.

β ANTENNÆ EXTERNÆ SUB ROSTRO CELATÆ.

8. CHORININÆ.—Carapax triangulato-ovatus. Rostrum furcatum. Pedes 8 postici vix compressi.

G. 1. Chorinus, *Leach.*—Carapax gibbosus, spinis plus minusve armatus, rostro longo, cornubus acuminatis, spinâ præorbitali saliente. Margo orbitalis inferior largè interruptus. Articulus antennarum ext. 1mus angustus. Pedes 2di 3tiis valde longiores.

G. 2. Chorilia, *Dana.*‡—Carapax formâ rostroque *Chorino* affinis. Orbita infra latè interrupta, supra fissa, spinâ præorbitali acutâ. Articulus antennæ externæ 1mus angustus, apice externo acutè producto. Pedes 1mi 2dis breviores, 8 postici similes, 2di 3tiis non multo longiores.

G. 3. Lahaina, *Dana.*§—Carapax formâ rostroque *Chorino* plerumque affinis. Cornua rostri gracillima valde divaricata. Articulus antennæ externæ 1mus latus, parce longior quam latior, apice cum processu spiniformi armato. Orbita infra supraque sinu rotundato interrupta, dente præorbitali acuto. Pedes toti graciles.

G. 4. Naxia, *Edwards.*—Carapax gibbosus, rostro mediocri, cornubus subcylindricis, truncatis, dente præorbitali brevi. Margo orbitalis inferior fissus, non late interruptus. Articulus antennarum ext. 1mus latus, apicem angustus.

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* Crust. D'Orbigny's South America, 6, pl. 3.

† Voy. Astrolabe et Zelée au pole Sud, pl. 1. f. 1.

‡ This volume, p. 269.

§ This volume, p. 269.

G. 5. Scyra, *Dana.**—Carapax gibbosus, rostro mediocri, laminato, cornubus acutis, dente præorbitali acuto. Margo orbitalis superior paulo unifissus. Articulus antennarum ext. 1mus omnino angustus, 2dus depressus.

G. 6. Hyastenus, *White.*†—*Chorino* affinis. Rostrum prælongum, cornubus non depressis, ante poneque oculos directus. Margo orbitalis superior unifissus. Pedes 2di longiores.

9. PYRINÆ.—Carapax subpyriformis. Pedes 8 postici valde compressi.

G. 1. Pyria, *Dana.*—Carapax depressus, inermis, rostro lamellato, cornubus ovatis. Oculi perbreves, orbitâ spinis non armatâ.

b. OCULI LONGITUDINALITER PORRECTI, CARAPACE ANTICE TRUNCATO.

10. OTHONINÆ.—Carapax antice late truncatus, rostro fere obsoleto. Oculi elongati, cylindrici.

G. Othonia, *Bell.*‡—Carapax parce oblongus, suborbicularis, rostro bifido. Antennæ internæ minutissimæ; externæ latæ, articulo 1mo lato, 2do valde depresso, inverso-subtriangulato.

B. Carapax paulo transversus.

81. SALACINÆ.—Carapax fere orbicularis. Pedes 8 postici crassi, longi, articulo penultimo infra recto. Rostrum fere obsoletum integrum.

G. Salacia, *Edwards* et *Lucas.*§—Carapax gibbosus. Fossa antennalis sub rostro partim excavata. Articulus maxillipedis externi 3tius medio apice emarginatus, hocque emarginatione articulum proximum gerens. *Inacho Grapso*que affinis.

2. DIGITI APICE OBTUSI, INSTAR COCHLEARIS EXCAVATI.

12. MITHRACINÆ.—Oculi mediocres. Carapax sive paulo oblongus, sive transversus.

G. 1. Mithrax, *Leach.*‖—Carapax sæpe orbiculato-ovatus, interdum transversus. Rostrum aut saliens aut fere obsoletum, bifidum. Articulus antennarum ext. 1mus apicem externum duabus spinis longis armatus.

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* This volume, p. 269.

† Ann. Mag. Nat. Hist, [2], xx, 61, and Crust. Voy. of Samarang, p. 11. The species is Seba's fig. 12, pl. 18 of the Thesaurus.

‡ Zool. Trans., ii, 55.

§ Crust. in D'Orbigny's S. Amer., 12, pl. 11.

‖ The characters given by White for his genus *Schizophrys* (Ann. Mag. N. H. [2], ii, 282, 283, and Voy. Samarang, Crust., p. 16) do not serve to exclude the species from Paramithrax, Maia or Mithrax. The peculiarity of the orbit described and of the 1st joint of the outer antennæ, as far as understood by the writer from the description, are the same as in the genera just mentioned.

The genus *Dione* of De Haan (Fauna Japon. Crust. p. 82,) differs from Mithrax only in not having the interior apex of the third joint of the outer maxillipeds project inward a little over the insertion of the fourth joint. It corresponds to "*Mithrax triangulaires*" of Edwards.

G. 2. Mithraculus, *White.*—Carapax transversus. Articulus antennarum ext. 1mus duabus spinis longis non armatus.

13. CYCLACINÆ.—Oculi longi.
G. Cyclax, *Dana.**—Carapax paulo oblongus, orbiculato-ellipticus, rostro sat brevi, bifido, acuto. Pedes 8 postici longi.

Fam. II. TYCHIDÆ.

Oculi retractiles, sub carapace latentes, orbitis carentes.

1. CRIOCARCININÆ.—Rostrum valde deflexum. Carapax oblongus.
G. Criocarcinus, *Guerin.*—Oculi prælongi, orbitæ margo superior processu longo lamellato apicem armato instructus.

2. TYCHINÆ.—Carapax oblongus, anticè latus, latitudine trans-orbitali grandi, rostro non deflexo, sat longo, furcato. Oculi apice paululum exserti.
G. Tyche, *Bell.**—Carapax depressus, anticè cornubus rostri spinisque duabus præorbitalibus totis parallelis et subæquis confectus, spinâ post-orbitali nullâ. Articulus antennarum ext. 1mus oblongus, inermis.

3. CAMPOSCINÆ.—Carapax oblongus, rostro fere obsoleto, emarginato. Pedes 8 postici longi. Oculi longè pedunculati et exserti.
G. Camposcia, *Latreille.*—Carapax subpyriformis, non armatus. Pedes 8 postici subcylindrici, 2di 3tiis breviores.†

Fam. III. EURYPODIDÆ.

Oculi retractiles, non sese latentes.

1. *Antennæ externæ apertæ.*

1. EURYPODINÆ.—Carapax triangulato-ovatus, rostro longo, furcato. Pedes longi, 4 postici non bene prehensiles. Oculi longi et longe salientes. Spina post-orbitalis oblonga.
G. Eurypodius, *Guerin.*—Pedes 8 postici longi, articulo penultimo valde compresso, ensiformi.
G. Oregonia, *Dana.*‡—Pedes 8 postici sat longi, articulo penultimo subcylindrico.

2. *Antennæ externæ sub rostro celatæ.*

AMATHINÆ.—[An oculi retractiles, iis *Eurypodii* similes, eoque genus hac sede?] Carapax triangulato-ovatus, rostro furcato, latitudine trans-orbitali perangustâ. Pedes longi.
G. Amathia, *Roux.*—Carapax gibbosus, valde armatus, rostro prælongo, cornubus divaricatis. Pedes filiformes, prælongi. Oculi parvi. Articulus antennarum ext. 1mus perangustus. Epistoma fere quadratum.

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* This vol., p. 269.

† Zool. Trans. ii, 57.

‡ This vol., p. 270.

FAM. IV. LEPTOPODIDÆ.

OCULI NON RETRACTILES, SESE NON LATENTES. PEDES PRÆLONGI.

A. Antennæ externæ apertæ.

1. ACHÆINÆ.—Carapax triangulato-ovatus, rostro perbrevi, bifido. Oculi longi, longèque salientes. Pedes 4 postici subprehensiles.
   G. 1. ACHÆUS, *Leach.*—Carapax gibbosus. Pedes 8 postici filiformes, longi, tarso pedum 4 posticorum falciformi, articulis penultimis subcylindricis.

2. INACHOIDINÆ.—Carapax triangulato-ovatus, rostro elongato, simplice.
   G. INACHOIDES, *Edw.* et *Lucas.**—Carapax valde gibbosus, rostro longiusculo, acuto, spinâ postorbitali parvâ. Pedes 8 postici sat longi, gracillimi. Articulus antennarum ext. 1mus angustus.

B. Antennæ externæ celatæ.

3. LEPTOPODINÆ.—Carapax triangulato-ovatus, rostro elongato, simplice. Pedes longissimi.
   G. LEPTOPODIA, *Leach.*—Oculi sat salientes. Pedes toti gracillimi.

4. STENORHYNCHINÆ.—Carapax triangulato-ovatus, rostro breve, bifido.
   G. STENORHYNCHUS, *Lamark.*—Oculi sat salientes. Pedes antici crassiusculi.

FAM. V. PERICERIDÆ.

OCULI NON RETRACTILES, SESE NON LATENTES. PEDES LONGITUDINE MEDIOCRES.

A. Antennæ externæ apertæ.

1. PARAMICIPPINÆ.—Rostrum valde deflexum. *Micippæ* aspectu similes.
   G. PARAMICIPPA.—Rostrum latum, articulus antennarum ext. 2dus breviter cordiformis. Epistoma perbreve.

2. PERICERINÆ.—Rostrum profundè bifidum, non deflexum.
   G. 1. PERICERA, *Latreille.*—Carapax sæpe triangulatus, interdum orbiculato-ovatus, paucis spinis sæpius armatus, rostro divaricatè furcato. Articulus antennarum ext. 1mus apice latus et spinâ armatus. Orbita tubulata, oculum strictè includens, margine superiore subtiliter unifisso.
   G. 2. TIARINIA, *Dana.*†—Carapax subpyriformis, tuberculis plerumque pustuliformibus sæpeque aggregatis ornatus, rostri cornubus gracilibus contiguis. Articulus antennarum ext. 1mus apicem latus et inermis, angulo externo interdum saliente tantum.

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* Crust. in D'Orbigny's S. Amer., 4, pl. 4.

† This volume, p. 271.

G. 3. Perinia, *Dana.**—Carapax orbiculato-ovatus, tuberculis paucis non acutis ornatus, rostri cornubus brevibus, discretis. Articulus antennarum ext. 1mus oblongus, apicem non latior, angulo externo valde producto. Orbita anticè aperta, margine superiore non unifisso.

G. 4. Halimus, *Latreille.*—Carapax triangulato-ovatus, cornubus rostri grandibus, divaricatis. Articulus antennarum ext. 1mus angustus. Articulus pedum 8 posticorum 5tus valde compressus, processu infra non armatus.

G. 5. Pugettia, *Dana.*†—Carapax triangulato-ovatus. Rostro antennisque ext. *Halimo* affinis. Articulus pedum 8 posticorum 5tus cylindricus.

3. MENÆTHINÆ.—Rostrum integrum aut subintegrum.

G. 1. Menæthius, *Edwards.*—Carapax triangulato-ovatus, depressus, regione antero-laterali plicis tribus plus minusve ornatâ. Pedes 8 postici cylindrici. ‡

G. 2. Acanthonyx, *Latr.*—Carapax depressus, non tuberculatus, sive subtriangulatus sive subquadratus (dente post-orbitali dilatato), regionibus non conspicuis, dente præorbitali parvulo, rostro crasso, apice emarginato. Pedes 8 postici mediocres, articulo penultimo compresso, infra dilatato et sæpe dentigero.

G. 3. Antilibinia, *M'Leay.*§—Carapax valde convexus, regionibus non conspicuis, latitudine transorbitali minore (lat. max. 3plo latiore), rostro crasso, apice emarginato. Articulus pedum 8 posticorum penultimus infra non dilatatus nec dentigerus.

G. 4. Peltinia, *Dana.*‖—Carapax depressus vix tuberculatus, dente præorbitali breviter instructus, latitudine transorbitali majore (lat. max. 2plo latiore), rostro lato, profundè bifido, sat brevi. Articulus pedum 8 posticorum penultimus infra non dilatatus nec dentigerus.

B. *Antennæ externæ sub rostro celatæ.*

1. Oculi prælongi.

4. STENOCIONOPINÆ.—Rostrum longum, furcatum, cornubus styliformibus, divaricatis.

G. Stenocionops, *Latreille.*—Carapax subpyriformis, gibbosus, spinâ præorbitali longissimâ. Articulus antennarum ext. oblongus.

2. Oculi aut longitudine mediocres aut perbreves.

5. EPIALTINÆ.—Rostrum oblongum, crassum, sive integrum sive emarginatum. Antennæ ext. apicem rostri sæpius non attingentes. Pedes 8 postici subcylindrici.

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* This volume, p. 271.

† Ibid, p. 268.

‡ The genus *Xiphus* of Eydoux and Souleyet, as figured in the plates of the Voyage of the Bonite, has the beak, præorbital spine or tooth, outer antennæ, and general form of Menæthius. But the eyes may be longer pedunculate, and as there is no description, it is not apparent whether they are retractile or not. The species is called *Xiphus margaritiferus.* The beak is pointed, and the 3d basal joint of the outer antennæ reaches to apex of beak.

§ Smith's Illust. S. Af. Zool.

‖ This volume, p. 272.

G. 1. Epialtus, *Edw.*—Carapax inermis, vix tuberculatus, regionibus non conspicuis. Octo pedes postici nudi aut subnudi, articulo penultimo infra sæpe subdentigero.

G. 2. Huenia, *De Haan.*[*]—Carapax 2–4 tuberculis acutiusculis sæpius armatus, interdum inermis, regionibus inconspicuis, rostro simplice, angulo carapacis postero-laterali prominente. Articulus pedum 8 posticorum penultimus plerumque infra dilatatus, dentigerus.

G. 3. Xenocarcinus, *White.*[†]—Carapax tuberculis subacutis sparsim armatus, rostro simplice, truncato, margine postero-laterali non angulator, otundato.

G. 4. Leucippa, *Edw.*—Carapax subtriangulatus fere inermis, regionibus non conspicuis, spinâ præorbitali nullâ. Pedes supra carinati, articulo penultimo infra non producto. Dens postorbitalis prope oculum insitus, oculum vero non celante.

Genus Zebrida, *White*,[‡] incertæ sedis; antennis externis obitâque *Eumedono* similis, eoque Parthenopineis congruit.—Carapax depressus, non armatus antice latior, dente post-orbitali portentosè expanso, rostro latissimo, lamellato, profundè furcato. Oculi paululum salientes. Pedes compressi, angulati. Articulus antennarum externarum 1-mus *hiatum orbitæ occupans*, antice non productus.

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[*] Crust. Faun. Japon. 73.

[†] Jukes's Voy. H. M. S. Fly; Ann. Mag. N. H. [2], i, 331; Crust. Voy. Erebus and Terror, pl. 2, fig. 1.

[‡] Crust. Voy. of Samarang, p. 23.

X

CONSPECTUS CRUSTACEORUM QUÆ IN ORBIS TERRARUM CIRCUMNAVIGATIONE, CAROLO WILKES E CLASSE REIPUBLICÆ FŒDERATÆ DUCE, LEXIT ET DESCRIPSIT J. D. DANA.—Pars VI.*

[Am. Jour. Sci., 2nd Ser., xi, 268.]

Hyas lyratus.—Carapax† lyratus parce minutè tuberculatus, pone oculos alatè expansus, marginibus alæ antico posticoque subæquis, parallelis, margine externo excavato, rostro lævi, cornubus acutis, rectis. Pedes antici subtiliter pubescentes, brachio carpoque margines pustulatis, manu gracili. Pedes 8 postici longi, graciles, subtilissimè pubescentes.

Hab. ad oras Oregonenses.

Libidoclea coccinea.—Coccinea. Carapax orbiculari-triangulatus, sparsim tuberculato-spinosus et paulo subtiliter granulosus, rostro sat brevi. Pedes subtilissimè granulosi, tenues, digito paris 1mi subulato et basin non tumido, articulo paris 2di 3tio valde breviore quam carapax, tarsoque parce breviore quam articulus quintus, articulo 4to pedum 8 posticorum supra complanato et lævi. Articulus maxillipedis externi 3tius anticè integer.—Long. 2″ 4½‴.

Hab. in mari profundo juxta Patagoniam orientalem.

Genus PUGETTIA, *Dana.*—Rostrum, oculos, antennasque externas *Halimo* affinis. Articulus pedum 8 posticorum 5tus cylindricus.

Pugettia gracilis.—Mediocris. Carapax lyratus, paulo convexus, latus, pone oculos utrinque largè triangulato-expansus cum angulo acuto, margine postero-laterali spinâ crassâ armato, latitudine ante-medianâ vix minore quam latitudo post-mediana, regione medianâ tumidâ, minutè bituberculatâ. Pedes antici crassi, longi, brachio supra carinato, dentato, carpo bicarinato, digitis fere omnino contiguis. Pedes octo postici nudiusculi, articulis 3tio 5toque subcarinatis, 4to dorsum depresso, 5to infra versus apicem penecillum setarum brevissimum ferente.—Long. 16‴.

Hab. in maris Oregonensis freto "Puget."

Pugettia Richii.—Sat grandis. Carapax subtriangulato-ovatus, pone oculos alatus, alâ bilobatâ, lobis acutis, posteriore elongato et fere transverso; spinâ laterali subposticâ grandi; regione medianâ 4 tuberculis spiniformibus armatâ, cardiacâ uno, postremâ uno, postero-laterali utrinque duobus. Pedes antici longi, crassi, brachio paulo tuberculato, margine antico subtilissimè scalpto, carpo valde cristato, digitis (*maris*) latè hiantibus, apicem denticulatis, digito mobili versus basin infra unituberculato.—Long. 2″.

Hab. in mari juxta Californiam.—*W. Rich.*

Micippa hirtipes.—Carapax minutè pustulatus, marginibus lateralibus irregulariter paulo inciso-dentatis, rostro fere verticali, sub-polygonato, juxta antennam externam profundè constricto, apicem triangulatè emarginato, superficiem seriatim pustulato, pustulis setigeris. Oculi longè exserti. Pedes hirsuti.—Long. 7‴; lat. 6‴.‡ Long. rostri 3‴.

Hab. in mari ad insulam Tongatabu.

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[*] Vide Partem I, in Nuntiis Acad. Art. Sci. Amer., i, 149; Partem II, ibid. ii, 9; Partem III, ibid. ii, 201; Partem IV, hoc op. [2], viii, 424; Partem V, ibid. ix, 129.

[†] Vocabulum "Carapax," auctoritate antiquâ non munitum, scientia rogat; masculinum, voce *thorace* exemplo.

[‡] Carapaci non corpori dimensiones referendæ.

Genus CHORILIA, *Dana.—Pisæ Chorino*que affinis. Carapax angustus, triangulatè ovatus, gibbosus, paulo armatus, rostro longo, furcato, cornubus gracilibus. Oculi in orbitis retractiles. Antennæ externæ sub rostrum celantes, articulo primo angusto, apicem externum acuto. Orbita infra interrupta, supra angustè unifissa, spinâ præorbitali acutâ. Pedes 1mi 2dis breviores, 8 postici similes, 2di 3tiis non multo longiores. *Pisâ* quoad antennas externas celatas differt; *Chorino* pedes 2dos 3tiis non multo longiores, 1mos 2dis breviores.

Chorilia longipes.—Carapax nec villosus nec pubescens, latitudine trans-orbitali perangustâ, triplo minore quam latitudo carapacis maxima, spinâ præorbitali tenui, acutâ, margine orbitali superiore angustè unifisso; rostro longo, pubescente, cornubus fere rectis, parce divaricatis; regione medianâ 4 spinis brevibus armatâ aliisque paucis brevissimis; regione cardiacâ parvâ, inermi, 2–4 tuberculis parvulis ornatâ; regione postero-laterali spinâ crassâ mediocri armatâ aliisque tuberculis parvulis ornatâ. Pedes antici longi, brachio trigono, margines spinuloso; carpo polygonato, margines spinuloso; manu subcarinatâ, subtilissimè tomentosâ.—Long. 1″ 7‴; lat. 10‴.

Hab. ad oras Oregonenses.

Genus LAHAINA, *Dana.—Chorilia* quoad pedes antennasque externas celatas affinis. Carapax elongatè ovatus, tumidus, parce armatus; rostri cornubus elongatis, gracillimis, divaricatis. Articulus antennarum externarum 1mus latus, parce longior quam latior, apicem processu spiniformi armatus. Orbita infra supraque sinu rotundato interrupta, dente præorbitali acuto. Pedes toti graciles.

Lahaina ovata.—Carapax vix spinosus, subvillosus, papillis postero-dorsalibus rectè flexis, spinâ postero-laterali parvulâ, aliâque posticâ; rostri cornubus corpore paulo brevioribus, tenuibus, valde divaricatis, margine orbitali superiore latè fisso, spinâ anticâ brevi acutâ et lateraliter unidentatâ, posticâ prominenter rectangulatâ non acutâ. Articulus antennarum externarum 1mus apicem spinigerus. Pedes tenues, longi, manu præangustâ, nudâ.

Hab. juxta insulam " Maui."

Genus SCYRA, *Dana.—Naxiæ* antennas orbitamque affinis. Rostrum laminatum, acutè furcatum. Articulus antennarum externarum primus undique angustus, apice externo ultra rostrum parce saliente; secundus depressus, tertio valde longior.

Scyra acutifrons.—Ovata, fere inermis, rostro brevi, cornubus ovato-lanceolatis, acutis, integris; spinâ præorbitali acutâ; regionibus carapacis valde prominentibus, regione medianâ aliisque profundè sejunctis, cardiacâ simpliciter rotundato-tuberculiformi. Pedes antici elongati, manu carinatâ, brachio angulos pustuloso, carpo 3–4-carinato.

Hab. in mari Oregonensi.

Genus CYCLAX, *D.—Mithraci* digitos affinis. Carapax suborbicularis, rostro parvulo, furcato. Oculi prælongi, retractiles, orbitis obliquè transversis. Antennæ externæ rostro remotæ, longæ, articulo primo apicem bi-spinoso, spinâ externâ longâ. Pedes longi; secundi carapace sesqui longiores; toti tenues, fere cylindrici.

Cyclax Perryi.—Carapax paulo oblongus, convexus, parce pustulatus, rostri cornubus subconicis, acutis, margine orbitæ superiore trispinoso, spinâ anteriore longiore et reflexâ, spinâ præorbitali parvulâ, post-orbitali crassiusculâ; marginibus carapacis antero-lateralibus 5-spinulosis, spinulis remotis, anteriore duplice; margine postico 2-spinuloso. Antennæ externæ dimidio carapacis longiores, pilosæ. Pedes carapace valde longiores, 8 posticis sparsim pilosis, tarso infra paulo piloso.—Long. $2\frac{1}{2}'''$.

Hab. in mari Vitiensi.

Eurypodius septentrionalis.—Carapax obsoletè villosus, spinis paucis, in regione cardiacâ posterius duabus anterius unâ; spinâ post-orbitali acutâ et anteriore minori vel acutâ vel obtusâ; rostro supra complanato. Articulus antennarum externarum 1mus dente subacuto extus ad basin armatus et juxta dentem processu subacuto. Pedes toti fere nudi; antici crassiusculi, brachio carpoque parce tuberculato-spinosis, manu scabro-granulatâ, paulo tumidâ, digito cum dente parvulo tuberculiformi intus armato polliceque juxta basin cum dente simili. Pedes 8 postici longi, articulo pedis tertii tertio tuberculis setiferis parvulis biseriatis infra ornato, 5to longiore quam quartus, subtilissimé hirsuto, ejus margine inferiore versus apicem brevissimè hirsuto.—Long. $2''\ 7\frac{1}{2}'''$; rostri $7\frac{1}{2}'''$; pedis secundi carapace plus duplo major.

Hab. in portu "Nassau" Fuegiæ.

Eurypodius brevipes.—*Feminæ:*—Carapax valde tumidus, spinis paucis, brevibus, in regione cardiacâ posterius duâbus anterius unâ; rostro supra complanato, breviore. Articulus antennarum ext. 1mus extus ad basin dente armatus et juxta dentem processu subacuto. Pedes breves, hirsuti, primi subtenues, brachio carpoque cum 3–4ve tuberculos minutos supra armatis, manu lineari, tenui, lævi, margine digiti interno denticulato. Pedes octo postici crassiusculi, valde breviores, articulo 3tio pedis secundi valde breviore quam carapax, articulo 5to lato et crasso, longiore quam quartus, non duplo longiore quam tarsus.—Long. $1''\ 7\frac{1}{2}'''$; rostri $3\frac{1}{2}'''$; coxæ pedis secundi $1''$, articuli 5ti $8'''$ ejusque lat. $2\frac{1}{2}'''$; tarsi $5\frac{1}{3}'''$.

Hab. in portu "Nassau" Fuegiæ.

Genus OREGONIA, *Dana.*—Rostrum, antennas, oculos, spinam postorbitalem pedesque elongatos *Eurypodio* affinis. Pedes tenues, octo postici articulum quintum aliosque subcylindrici, nunquam compressi.

Oregonia gracilis.—Carapax breviter sparsimque pubescens, rostro valde longiore quam latitudo inter-orbitalis. Pedes breviter sparsimque pubescentes, tenues; primi secundis paulo breviores, brachio tuberculis minutis supra infraque ornato, manu fere lineari, digito intus prope basin unidentato alioque denticulato. Abdomen *maris* sublineare, margine laterali versus apicem excavato, apice truncato.—Long. $1''\ 7'''$.

Hab. in maris Oregonensis freto "Puget."

Oregonia hirta.—Carapax pedesque sparsim hirti, rostro tenui, breviore quam latitudo inter-orbitalis. Pedes paulo breviores; digito pedis antici intus æque denticulato.—Long. $1''\ 5'''$.

Hab. in maris Oregonensis freto "Puget."

PERICERA TRIGONA.—Carapax bene triangulatus, triangulo equilaterali, spinâ postero-laterali longâ, crassâ, complanatâ; spinis dorsalibus duobus, unâ medianâ, alterâ cardiacâ; rostro mediocri, cornubus divergentibus; spinâ præorbitali perbrevi, subacutâ. Regio pterygostomiana uni-spinosa. Articulus pedum 3tius minutè tuberculatus et apicem plerumque spinoso-productus; manu tenui, digitis omnino contiguis.—Long. $1\frac{1}{4}''$.

Hab. in mari Vitiensi.

Genus TIARINIA, *Dana.—Periceræ* orbitam antennasque affinis. Rostrum bifidum, cornubus plerumque contiguis. Carapax subpyriformis, tuberculatus aut pustulatus, tuberculo cardiaco tuberculis tribus aut pluribus facto. Articulus antennarum ext. 1mus latissimus, spinâ apicali non armatus, angulo externo-apicali interdum paulo saliente et subacuto. Orbita bene tubulata. Spina præorbitalis prominens. Pedes 1mi 2dis non longiores.—*Pericerâ*, cornubus rostri fere contiguis, formâ carapacis, et superficie aggregato-tuberculosâ, differt. *Pericera tiarata* hîc pertinet.

TIARINIA GRACILIS.—Carapax pone oculos paulo constrictus, latitudine carapacis maximâ longitudinem post-orbitalem fere æquante, latitudine trans-orbitali sat majore quam dimidium latitudinis maximæ; rostro antennis externis breviore, cornubus apicem parce divergentibus, lateribus non dentigeris. Antennæ externæ ciliatæ, articulo primo angulum externum producto, subacuto, articulis secundo tertioque angustis, ad apicem parce latioribus. Manus tenuis, digitis omnino contiguis. Pedes 8 postici sparsim pubescentes, articulo tertio plus minusve tuberculato.—Long. $6'''$; lat. $3'''$.

Hab. in mari Suluensi.

TIARINIA ANGUSTA.—Carapax angustior, pone oculos vix constrictus, latitudine maximâ multo breviore quam longitudo post-orbitalis, latitudine trans-orbitali parce minore quam latitudo maxima; rostro longo, cornubus apicem conspicuè divergentibus, lateribus cum 3–4 dentes minutos remotos armatis. Antennæ externæ rostro dimidio breviores, articulis 2do 3tioque tenuibus. Manus tenuis, digitis omnino contiguis. Pedes 8 postici pubescentes, secundi 3tiis duplo longiores. Articulus 3tius paris antici plus minusve tuberculatus.—Long. $6'''$; rostri $2'''$; lat. $2\frac{1}{2}'''$.

Hab. in mari Suluensi.

Genus PERINIA, *Dana.—Periceræ* affinis. Orbita anticè paulo aperta eoque non bene tubulata, margine superiore non unifisso. Articulus antennarum ext. 1mus oblongus, anticè non latior, apicem externum paulo productus. Rostrum breviusculum, cornubus divaricatis. Carapax tumidus, paucis tuberculis tumidis ornatus.

PERINIA TUMIDA.—Carapax valde tumidus, brevis (lat. maximâ long. post-rostralem æquante) lateribus rotundatis, regione medianâ convexâ minutè bi-tuberculatâ, regione cardiacâ largè tuberculiformi, laterali tumidè tri-tuberculatâ. Rostrum breve, latitudine trans-orbitali fere duplo brevius. Spina præ-orbitalis brevis, subacuta. Pedes breves, articulis 3tio 4toque spinosè tuberculatis, manu crassâ, digitis latissimè hiantibus, digito mobili prope basin unidentato.—Long. $3\frac{1}{2}'''$; lat. plus $3'''$.

Hab. in mari juxta insulam Hawaiiensem "Maui."

Menæthius angustus.—Carapax sat tuberculatus, perangustus (latitudine multo minore quam longitudo post-rostralis), dentibus lateralibus tribus, duobus anticis bilobatis; rostro longo, emarginato; regione medianâ tumidâ, posticè bituberculatâ et anterius areâ triangulatâ notatâ; regione post-medianâ brevi, uni-tuberculatâ; regione intestinali grandi unituberculatâ, margine postico rotundato, integro.—Long. $5\frac{1}{2}'''$; lat. $3'''$.

Menæthius areolatus.—*M. subserrato* affinis. Carapax paulo tuberculatus, tuberculo cardiaco simplice, quoque post-mediano intestinalique simplicibus; rostro integro, mediocri, margine laterali dentibus tribus, primo simplice, secundo paulo duplice. Oculi apicem rotundati et spinâ anticâ alterâque posticâ instructi. Manus oblonga, superficie subtilissimè areolata, digitis plerumque contiguis, denticulis sex. Pedes 2di 1mis longiores.—Long. $2'''$.

Hab. in mari Suluensi.

Menæthius inornatus.—Carapax latus, latitudine trans-orbitali dimidio minore quam sive latitudo maxima sive longitudo post-rostralis, pone oculos non constrictus; marginibus lateralibus 3-dentatis, dentibus triangulatis subacutis; rostro brevi, integro; spinâ præorbitali latè triangulatâ; superficie dorsali paululum gibbosâ, regione cardiacâ simplicissimè tuberculatâ, medianâ tumidâ, vix subdivisâ, regione laterali fere planâ. Oculi parce salientes, apicem bene truncati.—Long. $5'''$; rostri $1'''$; lat. $4'''$.

Hab. in mari juxta insulam Hawaiensem "Maui."

Acanthonyx simplex.—*Feminæ: A. Petiverio* affinis. Carapax parce convexus, tuberculis omnino carens, marginibus lateralibus parallelis, posterius cum dentibus duobus obsoletis ornatis, dente post-orbitali nullo. Pedes antici reliquis parce crassiores, digitis plerumque contiguis, 7–8-denticulatis, denticulis triangulatis, carpo supra cristato, subacuto; paris postici articulus penultimus angustior, angulo inferiore basi nec apici propiore, (in *Petiverio* apici nec basi propiore). Tarsus 8–10 spinulis armatus.—Long. $9'''$; lat. $5\frac{2}{3}'''$.

Hab. ad insulas Hawaienses.

Acanthonyx debilis.—*Petiverio* affinis. Carapax paulo convexus, marginibus lateralibus parallelis, regione medianâ obsoletè bi-tuberculatâ, tuberculis setigeris. Pedes antici *maris* reliquis vix crassiores. Digitis parce hiantibus, carpo non cristato. Tarsus pedis postici 12–14 spinulis seriatim armatus; articulus penultimus latè triangulatus, infra obliquè truncatus.—Long $9'''$; lat. $5\frac{2}{3}'''$.

Hab. ad oras Chilenses.

Genus PELTINIA, *Dana.*—*Epialto Acanthonyci*que affinis. Carapax latus, sublævis, depressus, rostro brevi complanato, profundè bifido, latitudine transorbitali grandi, quam dimidium carapacis vix angustiore, dente præorbitali prominente, antero-laterali valde producto, postero-laterali parce prominente. Antennæ externæ rostro non celatæ, articulo primo angusto, apicem non dentigero. Oculi non retractiles, breves. Pedes 1mi 2dis breviores. Articulus 8 pedum posticorum penultimus fere cylindricus infraque non gibbosus.—Antennis apertis Epialto differt, Acanthonyce congruit; articulo pedum 8 posticorum penultimo subcylindrico Acanthonyce differt. Latitudo transorbitalis Antilibiniæ latitudine duplo major; quoque dorsum depressum, rostrum profundius furcatum.

PELTINIA SCUTIFORMIS.—Carapax subscutiformis, paulo oblongus, lævis, rostro vix longiore quam latiore, bilobato, angulis antico-lateralibus valde productis setigeris, diametroque gastrico maximo. Margine postero-laterali dentibus duobus obsolescentibus setigeris notato, regione medianâ bi-tuberculatâ. Antennæ externæ rostro valde longiores. Pedes tenues, antici inermes, digitis contiguis.—Long. 2‴.

Hab. in portu "Rio Janeiro."

PELTINIA NODULOSA.—Carapax suboctagonus, parce oblongus, lævis, angulis duobus lateralibus utrinque productis, obtusis, rostri cornubus triangulatè sejunctis, triangulatis, subacutis; dente præorbitali subacuto, post-orbitali obsoleto, margine postico inermi. Pedes nudi, mediocres, articulis totis manu tarsoque exceptis, plus minusve nodulosis, tarsis infra minutè spinulosis. Antennæ externæ apicem rostri parce superantes.—Long. 3‴.

Hab. in mari Vitiensi.

HALIMUS TUMIDUS.—Rostri cornua subconica, latè divaricata. Carapax valde tumidus, latere 4–6 spinulis minutis armato; regione medianâ tribus tuberculis parvulis triangulatè ornatâ, alio tuberculo obsolescente posteriore; regione cardiacâ tuberculis obsolescentibus notatâ. Pedes pubescentes, sat breves; manu tenui, basin latiore, digitis fere contiguis, tenuibus; articulo 5to pedis postici duplo longiore quam latiore. Articulus antennarum ext. 1mus apicem externum valde productus extusque 2–3-spinulosus.—Long. 7‴.

Hab. ad oras Australiæ orientalis.

HUENIA SIMPLEX.—*Maris:*—Carapax lævis, valde elongatus, angustè subtriangularis, lateribus antero-lateralibus longis, anticè convergentibus fere rectis et integris, in latera rostri rectè productis, dente præorbitali nullo, rostro oblongo, valde obtuso, angulo postero-laterali subacuto; margine postico integro; superficie 4-tuberculatâ, (regione medianâ 3-tuberculatâ, cardiacâ 1-tuberculatâ.) Pedes antici validi, manu crassâ, digitis latissimè hiantibus; articulus pedum 8 posticorum penultimus subcylindricus.—Long. 9½‴.

Hab. ad Insulas Hawaienses.

HUENIA BREVIROSTRATA.—*Feminæ:*—Carapax latus, paulo oblongus, breviter rostratus, utrinque 2-angulatus, angulis salientibus, lateribus inter angulos laterales valde excavatis; superficie carapacis breviter 4-tuberculatâ, rostro ad basin valde angustiore quam frons, acuto, non longiore quam latitudo transorbitalis, dente præorbitali vix saliente, obtuso. Manus tenuis, digitis versus basin paulo hiantibus, carpo inermi; articulus pedum 8 posticorum penultimus subcylindricus.—Long. 7½‴.

Hab. ad Insulas Hawaienses.

LEUCIPPA LÆVIS.—Carapax subtriangulatus, lævis, regione medianâ parce tumidâ, rostro elongato, furcato, cornubus triangulatis, et triangulatè sejunctis, acutis; marginibus carapacis lateralibus pertenuibus, paulo expansis et subreflexis, 4-dentatis (aut angulatè undulatis), dentibus inæquis, dente posteriore posticè arcuato, hoc margine in superficiem regionis postero-lateralis producto. Regio pterygostomiana 3-dentata (aut instructa uno dente in sinu grandi insito). Pedes nudi, articulo 3tio cristato.

Lambrus rhombicus.—Carapax paulo transversus, medium latior, subrhombicus, lateraliter posticèque arcuatus, pone oculos non constrictus; superficie inæquali tuberculis parvulis parce ornatâ, regione laterali super basin pedis secundi tuberculo conico armatâ, posterius altero minore; rostro apicem pubescente. Pedes antici margines hirsuti, manu trigonâ, marginibus salientibus inæque dentatis, brachio marginem anticum minutè eroso et superficiem minutè spinuloso. Pedes 8 postici gracillimi, breviter pubescentes.—Long. 10‴.

Hab. in Archipelago Vitiensi, mari Pacifico.

Ceratocarcinus? speciosus.—Carapax hexagonus, fere equilateralis, depressus, regionibus partim conspicuis, fronte lato, rectè transverso, subtiliter crenulato, medium emarginato, utrinque juxta oculum valde saliente. Manus digitusque mobilis spinulosi; carpus parce spinulosus; digiti contigui. Pedes 8 postici breviter pubescentes, inermes. —Long. 1½‴.

Hab. in Archipelago Vitiensi, mari Pacifico.

On the Genera TRAPEZIA and TETRALIA. By J. D. Dana.

[Am. Jour. Sci., 2nd Ser., xi, p. 223.]

The genus Trapezia, as instituted by Latreille and accepted by authors, embraces two distinct genera, which are similar in the general form and appearance of the species, but are readily distinguished by several characters. The *Trapezia cymodoce* is the type of the true Trapeziæ, the *T. digitalis* or *glaberrima* of the other genus. The following are their characteristics, omitting the points in which they agree.

Genus Trapezia.

Frons sinuosus vel 6–8-dentatus.

Maxillipedes externi marginem posticum fere transversi; apicesque articulorum secundorum inter sese valde remoti.

Superficies prælabialis viaque efferens lineâ elevatâ divisæ margoque buccalis anticus utrinque emarginatus, emarginatione viæ efferentis ostio.

Pedes antici elongati, brachio extra carapacem valde exserto, margine brachii antico denticulato et apicem anticum acuto, manu fere rectâ, pollice parce deflexo.

Pedes 8 *postici* non unguiculati, tarso apicem pusillè producto et truncato.

Abdomen maris sæpius 5-articulatum.

Genus TETRALIA.

Frons rectus aut rectiusculus, subtilissimè denticulatus.

Maxillipedes externi marginem posticum valde obliqui, apices articulorum secundorum inter sese paulo remoti.

Superficies prælabialis viaque efferens lineâ paulo elevatâ divisæ sed margo buccalis anticus vix emarginatus.

Pedes antici breviores, brachio apicem paulo exserto, margine brachii antico apicem rotundato subtiliterque denticulato, pollice valde deflexo.

Pedes 8 *postici*, breviter unguiculati.

Abdomen maris 7-articulatum.

The name *Tetralia*, from the Greek τετρα *four*, alludes to the subquadrate form of the species. The *Grapsilla* of M'Leay, as shown by Krauss and others is identical with Trapezia. The want of a proper claw to the tarsus in the Trapeziæ is a striking character, and is an anomaly among the Cancrinea. The extremity appears truncate in a side view as well as in an upper, and has nothing of the texture of a claw except in its minute points or setæ; while in Tetralia the tarsus is pointed in a side view though somewhat truncate as seen vertically; and the texture of the extremity is horny like a regular claw, which same texture extends back on either side.

In the closed orbits, the antennæ being wholly excluded, and in the ridge separating the efferent canal from the prælabial space as well as the narrow form, these genera are related to Eriphia. Fuller descriptions with many illustrations will be given in the Author's Report on the Crustacea of the Expedition, now ready for the press.

British Mus
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EXTRACTED FROM THE AMERICAN JOURNAL OF SCIENCE AND ARTS, VOL. XII.
SECOND SERIES, JULY, 1851.

ON THE

CLASSIFICATION OF THE CANCROIDEA.

By JAMES D. DANA.

The Cancroidea (or Crustacea Cyclometopa), like the Maioidea, are characterized by having, (1) the branchiæ 9 in number, 7 of which lie so as to form the exterior of the branchial pyramid; (2) the efferent passage from the branchial cavity passing over the lateral portions of the palate; (3) the male genital orifices situated in the base of the posterior legs and covered by the abdomen; (3) the male abdomen not narrower at base than the corresponding part of the sternum; (4) the buccal area subquadrate, and the 4th joint of the outer maxillipeds articulated with the 3d by its inner angle. The Telphusidæ have these characters, and may be considered true Cancroidea, though approximating to the Grapsoidea in the large vacant space in the branchial cavity, and having some peculiarities in the branchiæ fitting them for freshwater life.

The Corystes group also partake of the Cancroid character; yet they diverge from it, in the large outer antennæ more or less hairy, and both in this respect and in form, they approach the Hippa group, and thus have a much lower position in the series than the Cancroidea. They have no true relation in the character of the buccal area and efferent canal to the Leucosia group.

The genera Acanthocyclus and Corystoides (of Lucas) have the genital orifices, sternum and abdomen, and outer maxillipeds of the Cancroidea and Corystoidea; but the branchiæ (in Acanthocyclus at least) are less numerous, as in the Grapsoidea. The outer antennæ are obsolete, and the inner in Corystoides have no fossettes. They are therefore genera of low grade, at the foot of the Cancroidea, and approach closely in rank to the Corystoidea.

Our grand divisions of the Cancroidea are hence,

1. Cancrinea, or Cancroidea Typica.
2. Telphusinea or Cancroidea Grapsidica.
3. Cyclinea, or Cancroidea Corystidica.

The character of the efferent passage or canal, separating the Leucosoid Crustacea or Oxystomata, is the most striking among the Brachyura. While, in all other species, this passage passes over the outer portions of the palate or prælabial area, in these, it passes over the medial portions, and terminates at the middle of the front margin of the buccal area which is therefore elongated, giving the area a triangulate outline: the character of this passage and not the form of the area is the important character of the Leucosoidea. The inner branch of the 1st pair of maxillipeds is modified to correspond, as it covers (more or less perfectly) in this and all the Brachyura the efferent passage.

The efferent passage, which affords the striking character alluded to, has its different degrees of perfection among the Cancroidea. In a large number of genera, the waters wash over the palate without any confining ridge: but in others there is a distinct ridge, running longitudinally, near the middle of either lateral half of the palate, and terminating at the front margin of the buccal area. This ridge is prominent in Eriphia, Ruppellia, Ozius, Pilumnoides, Melia (as the writer has observed) and some other genera, and is also distinct in Pilumnus. It is wanting in Cancer, Xantho, and the allied, or if a trace is to be observed, (as in Menippe Rumphii and some other species,) it does not reach to the front margin of the buccal area. We have in this character, therefore, an important distinction separating the non-natatory Cancrinea into two groups, the Cancridæ and the Eriphidæ. Mere breadth of carapax alone is of very little value as a characteristic: Xantho passes by its allied genera into species but little broader than long, and so with Chlorodius.

Among the swimming species, a large part, as detected by De Haan, have a small lobe attached to the inner margin of the inner branch of the 1st maxillipeds: while others, as Platyonychus and the allied have no such lobe and approximate somewhat to the Corystoidea, although not properly, as we think, of that group.

The species of Lupa and Thalamita have a ridge upon the palate either side bounding the efferent passage; but there is one exception in *Lupa cribraria*, which species consequently must pertain to a distinct group from the other Lupas.

In these brief remarks on the classification of the Cancroidea, we leave much to be gathered from the following synopsis. But a few words should be offered on the genera of De Haan and Edwards; partly because the two are to some extent in conflict, and partly because several of those of De Haan are of unessential importance. The publication of the first fascicle of De Haan's Crustacea of the Fauna Japonica in 1833, preceded Edwards by a year, but the descriptions of his genera were so concise and imperfect that it was not possible for any one to have recognized them all.

Ruppellia of Edwards, and *Eudora* of De Haan, have the same typical species. But De Haan neglected to observe in the type the important peculiarity of the orbit, (its being wholly closed within so as to exclude the base of the outer antennæ, a peculiarity found in no Brachyura except a few of the Eriphidæ,) and hence his genus includes, according to his own use of it, some Xanthoid species. The two names are by no means synonyms; and adopting the group as laid down by Edwards, we are forced to adopt his generic name. Modifications to some extent may be made in accepted genera, and this we have attempted in some instances below, but not the complete perversion that would happen by giving De Haan's name to Edwards's genus.

De Haan has not recognized the distinction between the pointed and spoon-shape figures as a generic characteristic, and this makes some difficulty in substituting his names for those of Edwards, where the groups are otherwise similar. This characteristic was first employed by Leach and subsequently by Edwards. The genera of the two kinds often graduate into one another: but the parallel relation between the series is best shown by retaining them apart in separate subfamilies. Between our Xanthinæ and Chlorodinæ there is nearly a perfect parallelism. De Haan's species of the genus Xantho are in part Chlorodii.

De Haan has multiplied much the genera of swimming Crabs, by subdividing Lupa and Thalamita. This has partly arisen from an unwarranted reliance for the characteristic on the form of the 3d joint of the outer maxillipeds, as well as on that of the inner branch of the 1st maxillipeds.

In a former paper it was observed that the 3d joint of the outer maxillipeds may undergo great variations in proportion in the same genus. This is well illustrated among the Portunidæ. Amphitrite of De Haan (a subdivision of Lupa) is described as having this joint *short and oblique.* But in species of true Amphitrite, it varies from this form to a form unusually oblong. Again he makes Neptunus and Achelous differ from Amphitrite in having this joint more oblong, the reverse of which is actually the fact among many of the species examined by the writer. So Thalamita is characterized by having this same joint short, when in fact it is sometimes longer than broad. The form in one species (T. integra, *D.*) scarcely differs in relative length or obliquity from that of Lupa dicantha. Again *Oceanus* (Thalamita crucifera of Edwards) is said to have the inner branch of the 1st maxillipeds three-lobed, and *Thalamita*, as having the inner margin unidentate. The latter has the inner lobe as in Oceanus, and this makes the one tooth; the margin outside of this lobe or tooth, is straight at top in some species (T. crassimana and crenata), but excavate in others, becoming even deep and angulate in *Th. integra*, a species very near *admetus* in form and general characters. There is thus a gradual transition to the form in Oceanus. Such variations in this margin are therefore unimportant, as many other cases illustrate.

Our grand divisions are named after the larger to which they approximate. This plan might be carried farther with much profit. Thus among the five families of Cancrinea—the Cancridæ, are the *Cancrinea Typica;* the Eriphidæ, are the *Cancrinea Grapsidica*, for in the ridges of the palate as well as form they approximate to Grapsus;

the Portunidæ, are the *Cancrinea Typica Natatoria;* the Platyonychidæ, the *Cancrinea Corystidica Natatoria;* the Podopthalmidæ, the *Cancrinea Grapsidica Natatoria.* Again, among the subfamilies of Cancridæ, the Cancrinæ, are the *Cancridæ Corystidicæ;* the Xanthinæ and Chlorodinæ, the *Cancridæ Typicæ.*

The following is a synopsis of the known genera of Cancroidea.—

Legio I. CANCRINEA, vel CANCROIDEA TYPICA.

Fam. I. CANCRIDÆ.

Pedes postici gressorii. Ramus maxillipedis 1mi internus simplex. Palatum (vel area prælabiata) colliculo ad marginem anticum producto non divisum. Carapax sæpius late transversus, interdum angustus.

1. CANCRINÆ.—Antennæ internæ plus minusve longitudinales. Frons interorbitalis perangustus. Digiti acuminati.

G. 1. Cancer,* *Leach.*—Pars antennæ externæ mobilis hiatu orbitæ omnino exclusa. Carapax latissimus.

G. 2. Pirimela, *Leach.*—Pars antennæ externæ mobilis hiatu orbitæ non exclusa. Carapax perangustus.

2. XANTHINÆ.—Antennæ internæ plus minusve transversæ. Antennæ externæ basi firmè infixæ, parte mobili hiatu orbitæ non exclusâ. Frons interorbitalis latior. Digiti acuminati.

1. *Regio carapacis postica convexa. Orbita hiatu externo non interrupta.*

G. 1. Atergatis, *De Haan.*†—Margo antero-lateralis postero-laterali longior. Pedes 8 postici compressi, cristati.

G. 2. Carpilius, *Leach*, *De Haan.*—Margo antero-lateralis postero-laterali longior. Frons sæpissime bene 4-lobatus. Ramus maxillipedis 1mi internus lobato-furcatus. Pedes 8 postici nudi, subcylindrici, non cristati.

G. 3. Liomera, *Dana.*‡—Frons leviter 2-lobatus aut rectiusculus. Margo antero-lateralis postero-laterali non brevior. Ramus maxillipedis 1mi internus non lobatus. Pedes 8 postici nudi, subcylindrici, non cristati.

G. 4. Liagora, *De Haan.*§—Margo antero-lateralis postero-laterali brevior. Frons leviter 2-lobatus aut rectiusculus. Pedes nudi, tarsis exceptis. Ramus maxillipedis 1mi internus non lobatus.

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* *Platycarcinus*, Milne Edwards, Crust. i, 412.

† Faun. Japon. 17.—*Cancer* of Edwards, Crust. i, 372; and *Platypodia* of Bell, Zool. Trans. i, 335, 1835.

‡ Includes *Carpilius cinctimanus* of White, Crust. Voy. Samarang, 37, pl. 7, f. 4. The lobato-furcate form of the inner branch of the 1st pair of maxillipeds in Carpilius maculatus and the allied, is so peculiar, as shown by De Haan, that it must be admitted as a generic distinction. The true Carpilii have a strongly 4-lobed margin to the front, though the front is sometimes so bent downward that the lobes are not seen in a vertical view, though distinct in a front view.

§ Faun. Japon. 19.

2. *Regio carapacis postica transversim non convexa.*

a. Caxapax versus margines frontalem antero-lateralemque curvatim declivis.

G. 5. Actæa, *De Haan*,[*] *Dana.*—Margo postero-lateralis brevis, sæpius concavus. Orbita hiatu externo non interrupta.

b. Carapax versus margines frontalem antero-lateralemque parce declivis.

α *Orbita hiatu externo non interrupta.*

G. 6. Xantho, *Leach.*—Margo antero-lateralis postero-laterali longior. Articulus antennæ externæ 1mus oblongus, frontem bene attingens, articulo sequente e apicis medio articuli 1mi orto.

G. 7. Euxanthus, *Dana.*—*Xantho* formâ similis: articulus antennæ externæ 1mus hiatum ad summum implens, articulo sequente e latere excavato apicis orto.

G. 8. Paraxanthus, *Lucas.*[†]—*Xantho* formâ similis: articulus antennæ externæ 1mus abbreviatus processum frontis oblongum attingens tantum. Abdomen *maris* 5-articulatum.

G. 9. Menippe, *De Haan.*[‡]—Margo antero-lateralis postero-laterali brevior. Articulus antennæ externæ brevis nec frontem nec frontis processum attingens. Abdomen maris 7-articulatum.

β *Orbita hiatu externo interrupta, infra integra.*

G. 10. Panopæus, *Edwards.*—Margo antero-lateralis tenuis, postero-laterali sæpius brevior, ad orbitæ angulum externum directus.

γ *Orbita infra extusque tribus dentibus instructa, uno externo, duobus inferioribus.*

G. 11. Medæus, *Dana.*—Angustus, paulo transversus, [nudus,] fronte sat brevi. Margo antero-lateralis sub orbitâ productus. Abdomen *maris* 5-articulatum, segmento ultimo brevi. Pedes antici crassi, iis *Xanthi* similes.

G. 12. Halimede, *De Haan.*[§]—Angustus, parce transversus, [villosus,] fronte breviore. Abdomen maris 7-articulatum, segmento ultimo valde elongato. Pedes antici crassi, iis *Xanthi* similes.—An *Pilumnis* propinquior?

3. CHLORODINÆ.—Antennæ internæ transversæ. Antennæ externæ basi firmè infixæ, parte mobili hiatu orbitæ raro exclusâ. Frons interorbitalis latior. Digiti instar cochlearis excavati.—Quoad genera, Xanthinæ et Chlorodinæ ferme parallelæ.

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[*] Faun. Japon. 18.

[†] Crust. D'Orb. S. Am., 18. We see no sufficient character for sustaining this genus, excepting the short basal joint of the outer antennæ.

[‡] Faun. Jap. 21.—*Pseudocarcinus* of Edwards, Crust. i, 407.—*Pelæus*, Eydoux and Souleyet, Voy. de la Bonite. *Pelæus armatus* is the name given to a Sandwich Island species figured in the plates of the Bonite, but not yet described.

[§] Faun. Japon. 35. Our *Medæus* has nearly the outline of Halimede, but is naked and very deeply areolate. It is a Xantho in nearly all its characters, though narrow, and having the orbit below deeply divided. On this account, I have introduced Halimede, which resembles our genus in form, in this place, not having had an opportunity to study its characters from specimens.

1. *Hiatus orbitæ internus processu basis antennæ externæ occupatus, articulum 2dum occludens.*

G. 1. ETISUS, *Leach.*[*]

2. *Hiatus orbitæ internus basi antennæ externæ occupatus, articulo 2do non occluso.*

1. Regio carapacis postica convexa.

G. 2. CARPILODES, *Dana.*—Carapax latus, nudus, margine antero-laterali crassè rotundato. Pedes 8 postici subcylindrici, nudi. *Liomeræ* habitu similis.

G. 3. ZOZYMUS, *Leach.*[†]—Carapax mediocriter latus, margine antero-laterali tenui. Pedes 8 postici valde compressi, cristati aut subcristati. *Atergati* habitu similis.

2. Regio carapacis postica fere plana.

a. Carapax versus margines frontalem antero-lateralemque curvatìm declivis.

G. 4. ACTÆODES, *Dana.*[‡]—Pedes 8 postici non cristati. *Actææ* aspectu similis. Articulus maxillipedis externi 3tius apicem vix excavatus.

G. 5. DAÏRA, *De Haan.*[§]—Pedes 8 postici non cristati. Articulus maxillipedis externi 3tius apice valde emarginatus.

b. Carapax versus margines frontalem antero-lateralemque vix declivis.

G. 6. CHLORODIUS, *Leach.*[||]—Carapax plus minusve transversus Articulus antennæ externæ 1mus oblongus frontem bene attingens. Articulus maxillipedis externi 3tius subrectangulatus. *Xantho* aspectu similis.

G. 7. PILODIUS, *Dana.*—Carapax paulo transversus. Articulus antennæ externæ abbreviatus, processum frontis oblongum attingens tantum. *Paraxantho* aspectu similis.

G. 8. CYCLODIUS, *Dana.*—Carapax parce transversus. Articulus antennæ externæ oblongus frontem bene attingens. Articulus maxillipedis externi 3tius triangulatus, latere interiore brevissimo.

G. 9. CYMO, *De Haan.*[¶]—Carapax non transversus, fere orbiculatus, disciformis. Antennis *Chlorodio* affinis.

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[*] Part of the species (the typical) have the arm long projecting, and a broad form somewhat like Cancer. Another part, quite different in habit, have a short arm as in Actæodes, and graduate into Actæodes. The latter may well be named ETISODES.

[†] *Zozymus* of Leach and *Ægle* of De Haan have the same species as type, the *Z. æneus*, and De Haan makes the cristate character of the 8 posterior legs a generic character. We follow him in this respect, though adding the character dependent on the spoon-shape of the fingers, as done by Leach.

[‡] Includes *Zozymus tomentosus* and the allied, in which the 8 posterior legs are not cristate. The species are closely like Actææ except in the fingers.

[§] Faun. Japon. 18; *Lagostoma*, Edwards, Crust. i, 386.

[||] *Chlorodius* of De Haan (F. Jap. 13) of subsequent date, is synonymous with *Atelecyclus* of Leach.

[¶] Faun. Japon. 22.

4. POLYDECTINÆ.—Antennæ internæ transversæ. Antennæ externæ basi solutæ, liberæ.—An *Pilumnis* propinquior?

G. Polydectus, *Edw.**—Orbita dentibus tribus infra instructa. Manus elongata, digitis prælongis, attenuatis, uncinatis, cum dentibus tenuiter spinuliformibus sæpe armatis.

Fam. II. ERIPHIDÆ.

Pedibus maxillipedeque 1mo *Cancridis* affinis. Palatum colliculo usque ad marginem anticum producto utrinque divisum. Carapax sæpius angustus, interdum latus, latitudine ante-medianâ sæpissimè majore, oculis remotis.

1. ŒTHRINÆ.—Carapax transversus, lateribus valde dilatatus et rotundatus. Antennæ internæ fere longitudinales.

G. 1. Œthra, *Leach.*

2. OZINÆ.—Carapax plus minusve transversus. Digiti acuminati. Antennæ internæ transversæ. Orbita hiatu interno basi antennæ occupato instructa. Abdomen *maris* 7-articulatum.

1. *Articulus antennæ externæ* 1*mus frontem bene attingens.*

G. 1. Galene, *De Haan.*†—Carapax transversus, longitudinaliter multo convexus, antice declivis.—An *Potamiæ* propinquior?

G. 2. Ozius, *Leach.*—Carapax transversus, latus, fere planus.

2. *Articulus antennæ externæ* 1*mus frontem non attingens.*

G. 3. Pseudozius, *Dana.*‡—Carapax transversus, fere planus, latior, margine antero-laterali breviore.

G. 4. Pilumnus, *Leach.*—Carapax angustus, parce transversus, sæpius convexus, margine antero-laterali breviore.

G. 5. Pilumnoides, *Edw.* et *Lucas.*§—Carapax angustus, parce transversus, valde convexus, margine antero-laterali longiore, bene arcuato, super carapacem postice incurvato.

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* This genus is very peculiar in the hand: both fingers are long styliform and very slender, with incurved apices, and hardly touching except at tips, and when dentate the teeth are delicate spines on the inner margin; moreover, the part of the hand anterior to the fingers is quite short. A species collected by the writer is closely like the *P. cupulifer* in most of its characters. The form of the hand is very unlike anything among other Cancroidea; and Halimede which has been supposed to be near Polydectus, has (like Medæus) the ordinary form, like that in Xantho.

The genus *Iphiculus* of White (Crust. Voy. Samarang, 57, pl. 13, f. 5), has the general characters of our Polydectus—the same villous coat, similar fingers, even to the spiniform dentation of the fingers, and other resemblances; and we suspect although a broader species, that his *I. spongiosus* is a true *Polydectus.*

The specimen of the Polydectus, from which a description with a colored drawing was taken by me while it was living, is not now found in our collections, and I have not therefore been able to ascertain the character of the prælabial plate and thus assure myself whether the species are related to the Eriphidæ or not. It is very possible that the true place is after Ozinæ.

† Faun. Japon. 19.

‡ Near Pseudocarcinus, from which it differs in the ridge on the prælabial plate, as well as in its flatter form.

§ Crust. D'Orb. S. Am., 21.

G. 6. Melia, *Latr.*—Carapax subquadratus, fere planus, fronte lato, oculis versus angulos insitis. Pedes toti graciles. Basis antennæ externæ cylindricus.

An genus sequens hîc pertinet?

Acanthodes, *De Haan.*[*]—Carapax angustus, *Pilumno* formâ affinis, spinis grandibus anticè armatus. Pedes spinosi.—Species *Acanthodes armatus* Haanii magnitudine portentosus.

3. ACTUMNINÆ.—Orbitâ *Ozinis* similis. Digiti instar cochlearis excavati.

G. Actumnus, *Dana.*[†]—Carapax paulo transversus, valde convexus, antice lateraliterque curvatim declivis. Articulus antennæ externæ 1mus processum frontis attingens tantum.

4. ERIPHINÆ.—Orbita infra bene clausa, hiatu interno carens, articulo antennæ e orbitâ omnino excluso. Carapax sive paulo transversus sive subquadratus.

G. 1. Ruppellia, *Edw.*—Carapax latior. Antennæ pars mobilis externæ orbitâ paululum remota. Articulus maxillipedis externi 3tius paulo transversus.

G. 2. Eriphia, *Latr.*—Carapax angustus, convexus, fronte sæpius valde declivi. Antennæ pars mobilis externæ orbitâ longe remota. Articulus maxillipedis externi 3tius paulo transversus.

G. 3. Domæcius, *Souleyet.*[‡]—*Ruppelliæ* formâ antennisque externis affinis. Articulus maxillipedis externi 3tius valde transversus, brevissimus, epistomam tegens.

G. 4. Trapezia, *Latr.*—Carapax subquadratus, planus, glaber, fronte horizontalis, leviter 6–8-dentatus, aut sinuosus, lateribus longitudinalis. Tarsi non unguiculati, minute spinulosi. Brachium ultra carapacem longe exsertum.

G. 5. Tetralia, *Dana.*[§]—Carapax aspectu *Trapeziæ* affinis. Frons horizontalis, rectiusculus, subtilissimè denticulatus. Tarsi breviter unguiculati. Brachium ultra carapacem paulo exsertum.

G. 6. Quadrella, *Dana.*—Carapax subquadratus, paulo convexus, lævis, fronte horizontalis, 6-spinoso-dentatus. Tarsi unguiculati. Brachium ultra carapacem longe exsertum.

Fam. III. PORTUNIDÆ.

Pedes postici natatorii, tarso laminato. Ramus maxillipedis 1mi internus lobo interno instructus. Palatum colliculo utrinque sæpissime divisum. Corpus sive latum sive angustum, oculis sat brevibus.

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[*] Faun. Japon. 20.

[†] Very near Actæa, but the prælabial plate or palate is strongly divided by a ridge either side. Besides, the form is much narrower and more convex than in the Actææ, being subglobose above.

[‡] Voy. of the Bonite; also, "Voy. au Pole Sud," under D'Urville, in the Astrolabe and Zélée, plate 6, figs. 3-7, by Hombron and Jacquinot.

[§] This Journal, [2] xi, 223.

1. LUPINÆ.—Sutura sterni mediana segmenta tria intersecans. Palati colliculi prominentes.

1. *Pars antennæ externæ mobilis hiatu orbitæ non occlusa, orbitâ jacendo aptata.*

G. 1. Scylla, *De Haan.*[*]—Valde latus et crassus, marginibus anterioribus simul sumtis bene arcuatus, antero-laterali longiore quam postero-lateralis. Pedes antici breviores, crassissimi, manu valde tumidâ, non angulatâ vel prismaticâ.

G. 2. Lupa, *Leach.*[†]—Valde latus, marginibus anterioribus totis simul sumtis bene arcuatus. Manus elongatè trigona aut prismatica, costata.

G. 3. Amphitrite, *De Haan,*[‡] *Dana.*—Angustior. Margines frontalis antero-lateralisque angulo convenientes, antero-laterali raro breviore quam postero-lateralis. Manus elongata, prismatica. Basis antennæ externæ crassus, hiatu orbitæ parce angustior.

G. 4. Carupa, *Dana.*—Transversus. Margines frontalis antero-lateralisque angulo convenientes, fronte recto, emarginato. Basis antennæ externæ subcylindricus, hiatu orbitæ multo angustior.

2. *Pars antennæ externæ mobilis hiatu orbitæ omnino per basis processum occlusa, orbitâ plus minusve remota.*

G. 5. Thalamita, *Latr.*—Latus. Frons dimidio latitudinis carapacis longior; margo antero-lateralis longitudinalis. Articulus antennæ externæ 1mus prælongus, 2dus orbitâ remotissimus. Pedes antici longi, manu elongatâ.

G. 6. Charybdis, *De Haan*, *Dana.*[§]—Angustior. Frons dimidio latitudinis carapacis brevior; margo antero-lateralis obliquus. Articulus antennæ externæ 1mus paulo oblongus, 2dus orbitâ paulo remotus. Pedes antici longi, manu elongatâ.

G. 7. Lissocarcinus, *White.*[‖]—Suborbiculatus, lævis, subporcellanus. Articulus antennæ externæ 1mus brevis, fere longitudinalis, articulo sequente orbitâ parce remoto. Pedes nudi; antici breves, brachio ultra carapacem vix saliente, manu perbrevi.

2. ARENÆINÆ.—Sutura sterni mediana segmenta tria intersecans. Palatum colliculo utrinque non divisum. Ramus maxillipedis 1mi internus ad apicem late transversim triangulatus lineamque medianam fere attingens.

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[*] Faun. Japon. 11.

[†] *Neptunus, Pontus* and *Achelous* of De Haan, (Faun. Japon., 8, 9,) the distinctions between which genera appear not to be sustained.

[‡] Faun. Japon. 8. Includes, as here adopted, the Lupa of De Haan, which division he restricts to the *Lupa forceps* (Edw. Crust. i, 456). The *Lupocyclus* of Adams and White, (Crust. Voy. Samarang, 47, pl. 12, f. 4,) appears to be identical with Amphitrite.

[§] Fauna Japon. 10. Includes both *Charybdis* and *Oceanus* of De Haan, which divisions shade into one another by imperceptible gradations, and are not distinguished by any important characters. Corresponds to the "Thalamites Hexagonales" of Edwards.

[‖] Crust. Voy. Samarang, 45. We have taken the generic characters from a species collected by us, in connection with the description by White.

G. Arenæus, *Dana.*—*Lupæ* affinis. Carapax valde latus, antice arcuatus. Pars antennæ externæ mobilis hiatu orbitæ insita. Manus prismatica.*

3. PORTUNINÆ.—Sutura sterni mediana segmenta duo intersecans. Colliculi palati sæpius obsoleti.

G. Portunus, *Fabr.*—Angustus, margine antero-laterali breviore quam postero-lateralis.

Fam. IV. PLATYONYCHIDÆ.

Pedes postici natatorii, tarso laminato. Ramus maxillipedis 1mi internus lobo interno non instructus. Palatum colliculo utrinque non divisum. Corpus angustum.

G. 1. Carcinus, *Leach.*†—Pedes postici male natatorii, tarso angustè lanceolato. Carapax parce transversus.

G. 2. Portumnus, *Leach.*—Pedes 5ti natatorii tantum, tarso lanceolato, acuto. Carapax non latior quam longior.

G. 3. Platyonychus, *Latr.*‡—Pedes 5ti natatorii tantum, tarso lato, elliptico. Carapax latior quam longior.

G. 4. Polybius, *Leach.*—Pedes 2di, 3tii, 4ti, 5ti toti natatorii, tarsis late lanceolatis.

Fam. V. PODOPHTHALMIDÆ.

Pedes postici natatorii, tarso laminato. Ramus maxillipedis 1mi internus lobo interno instructus. Corpus latum, antice valde transversum, orbitis oculisque longissimis.

G. Podophthalmus, *Lamarck.*

Legio II. TELPHUSINEA, vel CANCROIDEA GRAPSIDICA.

Fam. I. TELPHUSIDÆ.

Carapax subquadratus aut orbiculato-quadratus. Palatum colliculo utrinque sæpius divisum. [Species Eriphiis paulo affines.]

G. 1. Telphusa, *Latr.*—Articulus maxillipedis externi 3tius subquadratus, 2dus oblongus. Carapax subquadratus.

G. 2. Trichodactylus, *Latr.*—Articulus maxillipedis externi 3tius subtriangulatus, 2dus oblongus.

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* This genus is instituted for the Lupa cribraria, which differs from the other Lupas in the characters stated. This species occurs in the shallow waters off a sand beach.

† Xaiva of M'Leay (Smith's Illust. Zool. S. Africa) is described as near Carcinus. The narrow form is the same; the antero-lateral margin 1-dentate and shorter than the postero-lateral; the tarsus of the 5th pair of legs wider than in Carcinus; the 3d joint of the outer maxillipeds subquadrate and carinate at base, with the inner margin emarginated for the next joint just above its middle, a form which occurs in Platyonychus.

‡ *Anisopus* of De Haan, Faun. Japon.

G. 3. Valdivia, *White.*[*]—Articulus maxillipedis externi 2dus brevior quam latior, 3tius longior quam latior.

G. 4. Potamia, *Latr.*—Articulus maxillipedis externi 3tius apice subtriangulatus anguloque apicali 4tum gerens. Palatum colliculo utrinque bene partitum.

An hîc pertinet genus *Galene* Haanii ?[†]

Legio III. CYCLINEA, vel CANCROIDEA CORYSTIDICA.

Pedibus maxillipedeque 1mo Cancridis affinis. Palatum colliculo utrinque non divisum. Antennæ externæ obsoletæ. Carapax angustus, suborbiculatus. Branchiæ numero septem.

G. 1. Acanthocyclus, *Lucas.*[‡]—Carapax orbiculatus. Pedes longitudine mediocres, tarso uncinato.

G. 2. Corystoides, *Lucas.*[§]—Carapax oblongus, ellipticus. Pedes longiores, tarso styliformi, longo. Antennæ internæ fossis carentes.

2. *Additional note to the Remarks on the Classification of the Maioidea;* by James D. Dana.[‖]—The following genus by Kröyer[¶] should be added to the synopsis given in the last number of this Journal. It appears to belong to the subfamily Inachinæ, and is classed near Inachus by its author. The species on which the genus is founded is the *Cancer phalangium* of Fabricius, Faun. Groenl. n. 214, and his *Cancer Opilio* in Det danske Vid. Selsk. Skr. nye Saml. iii, 180. It is from Greenland. Kröyer gives the following generic characters:—

G. Chionœcetes.—Cephalothorax depressus, subtriangularis, eadem fere longitudine ac latitudine, antice truncatus, fronte lata rostroque horizontali, bifido, brevissimo. Pedes 2di paris duplicem cephalothoracis longitudinem superantes, triplicem vero non attingentes; pedes 1mi paris 2dis tertiisque breviores, cephalothorace vero longiores (interdum duplo); chelis acuminatis, falcatis; *pedes 2di, 3tii, 4tique paris compressi*, 5ti paris subcylindrici. 3tius pedum maxillarium externorum articulus fere quadratus eadem pæne longitudine ac latitudine; 4tus articulus angulo interno tertii adnexus; oculi crassi, in orbitam retractiles; pars antennarum externarum terminalis mobilis brevissima. Abdomen sex constat articulis.—The name Chionœcetes is from *χιων*, *nix*, and *οικητης*, *incola.*

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[*] Ann. and Mag. Nat. Hist., xx, (1847,) 206.

[†] See page 127, where it is placed with the Ozinæ. The branchial cavity is very large, as in Potamia, and contains outside of the branchiæ a large open space. The shell of a specimen from the Sandwich Ids. closely like the *G. natalensis* of Krauss, has the appearance of a fresh-water or land species, the texture being less calcareous than in most marine species. The specimen was not collected by the writer, and its exact habitat is not known. Krauss's species occurred under stones on the shores at the mouth of a river in South Africa.

[‡] Crust. D'Orbign. S. Am. 29, pl. 15,

[§] Crust. D'Orbign. S. Am. 31, pl. 16.

[‖] Last volume of this Journal, p. 425.

[¶] Tidskrift, ii, 249.

Received Dec 13. 1851 with the [illegible]

XII.

EXTRACTED FROM THE AMERICAN JOURNAL OF SCIENCE AND ARTS, VOL. XII.
SECOND SERIES, SEPT., 1851.

ON THE
CLASSIFICATION
OF THE
CRUSTACEA GRAPSOIDEA.

By JAMES D. DANA.

The Grapsoidea, in the system here explained, correspond to the Cyclometopa of Edwards, excepting that we separate the Telphusa, group and place it with the Cancroidea.*

A few of the species have the fourth joint of the outer maxillipeds articulated by the inner angle with the third, as in the Cancroidea: of these we make the family Gonoplacidæ, or the Grapsoidea Cancridica.

In all the other species, this articulation is remote from the inner angle, being either near the middle of the apical margin or at the outer angle. The near universality of this character among the Grapsoidea is proof of its importance, and sustains us in removing from along side of the Gonoplacidæ the Macrophthalmi.

The Macrophthalmus and Ocypod groups are closely related, and with Doto make our *second* family the Macrophthalmidæ,—characterized by the great length of the eye-peduncles, the very narrow front, and the 2nd joint of the male abdomen narrower than the corresponding part of the sternum.

The Grapsus family—the third has the same limits as in the system of Milne Edwards. The form is subquadrate, with the lateral margin anteriorly more or less acute; the front broad; the eyes of moderate length or short; the second joint of the male abdomen usually not narrower than the corresponding part of the sternum. We give more importance than has hitherto been done to the fact of the outer maxillipeds having an oblique piliferous crest on the surface or not; and we make this characteristic the basis of a subdivision of the Grapsidæ (exclusive of the Plagusinæ) into the subfamilies *Grapsinæ* and *Sesarminæ*, the former characterized by the absence of this crest. A survey of the groups will at once show, we believe, that we follow natural lines in this subdivision. The *Plagusinæ* are distinguished by longitudinal sinuses in the front of the carapax for the inner antennæ.

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* This volume, p. 130.

The family GECARCINIDÆ—the fourth—is the same in limits as the "Gecarciniens" of Edwards,—the species are remarkable for their thick obese forms, high rounded front and antero-lateral margin, and for having the second joint of the male abdomen but slightly narrower than the corresponding part of the sternum.

The family PINNOTHERIDÆ—the fifth—differs from the "Pinnotheriens" of Edwards in the removal of the genus *Doto*, closely related to Ocypod, and also the genus *Myctiris*, an aberrant form between Pinnothera, Doto and Helœcius, but very peculiar in being narrow anteriorly, and having no distinct orbits for the retraction of the eyes. The genus *Myctiris* constitutes the last or sixth family MYCTIRIDÆ. In the Pinnotheridæ, the male abdomen is much narrower than the sternum behind, which character separates them from the Gecarcinidæ.

We do not believe in a properly lineal order in classification; yet the succession we have given to the families is a natural succession, as nearly as can be made. The *first*, Gonoplacidæ, link the Grapsoidea with the Cancroidea, and the genus Eucrate is very near Eriphia and Panopæus in form. The *second*, Macrophthalmidæ, is closely allied to the first, so much so that Marophthalmus and Gonoplax have been arranged in the same group. The *third*, Grapsidæ, are again very near the Macrophthalmidæ, and the genus Helice is almost as correctly placed with one as the other. Thence the transition is as gradual also to the *fourth* or Gecarcinidæ, and from the fourth to the *fifth* or Pinnotheridæ, and from the fifth to the *sixth* or Myctiridæ. Still, there are other relations of somewhat less prominence which this order does not exhibit. That of *Elamena* to Inachus has long been recognized.

The Gonoplacidæ are placed in the Cancer group by DeHaan, who neglected the important distinction based on the male verges. The other genera, exclusive of Pinnothera and the species related, he divides into two groups, the *Ocypus* and *Grapsus* groups, the former having the fourth joint of the outer maxillipeds articulated with the outer angle of the third, and the latter, articulated with the middle of the apical margin;—a distinction difficult to carry out and dividing natural groups, as the Gecarcinidæ, Grapsidæ, &c. His genera of the OCYPUS group, are, Doto, Scopimera, Myctiris, Gelasimus, Macrophthalmus, Cleistostoma, Cardisoma, Chasmagnathus, Helice, Uca, Ocypoda, Acanthopus (a division of Plagusia); those of the GRAPSUS group, are, Gecarcinus, Philyra (division of Plagusia), Plagusia (another division), Grapsus, Trichopus, Eriocheir, Pachysoma, Goniopsis, Platynotus, Brachynotus, Nautilograpsus, Cyclograpsus, and in his "Decas Septima," published in 1849, he unites with the group, Pinnotheres and Hymenosoma.

We add a few words on the genera of GRAPSIDÆ. Both De Haan* and Randall† have divided the Grapsus of authors into two genera, according to the *short* or *oblong* form of the third joint of the outer maxillipeds. The former are De Haan's *Grapsi*, and Randall's *Pachygrapsi;* the latter De Haan's *Goniopses* and Randall's *Grapsi*. But the length of this joint, as we have shown in many other cases, is a characteristic of small importance, and such a basis for subdivision is therefore wrong. There are two natural groups; one with arcuate sides, like *G. pictus*, and the other with straight sides like *G. cruentatus* and *G. messor;* and in each, this joint may be short or oblong. *G. variegatus*, like *G. pictus*, has the joint oblong; yet a species every way similar and hitherto referred to the *variegatus* has the same joint not longer than broad.* We hence reject this subdivision and adopt two others, viz: *Grapsus*, having arcuate sides, and *Goniograpsus*, having straight sides. The latter forms the transition to *Sesarma* and *G. cruentatus* is like the *Sesarmæ* in habit.

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* Faun. Japon., p. 33, 1833.

† Jour. Acad. Nat. Sci., Philad., viii, 124, 126.

The genus *Cyclograpsus* of Edwards is characterized by its author as having a piliferous crest on the outer maxillipeds, though exceptions are admitted. Subsequently, M'Leay made his genus *Gnathochasmus* on the same type. Some recent authors have taken M'Leay's name for these typical species and restricted *Cyclograpsus* to the exceptions. We find no authority in the rules laid down by the British Association, or in the nature of the case, for thus perverting Cyclograpsus from its true type as first established, and we therefore make Gnathochasmus a synonym of it, and adopt a new name for the species without the piliferous crest. This we believe is due to M. Edwards.

The following is a synopsis of the Families, Subfamilies and Genera of Grapsoidea:—

CRUSTACEA GRAPSOIDEA.

1. ARTICULUS MAXILLIPEDIS EXTERNI 4TUS ANGULO 3TII INTERNO ARTICULATUS.

FAM. I. GONOPLACIDÆ.

Carapax transversus. Frons quartâ parte latitudinis carapacis longior, paulo deflexus, lamellatus. Antennæ internæ transversæ. Articulus abdominis *maris* 2dus sterno contiguo angustior.

G. 1. EUCRATE, *De Haan.*†—Carapax antice arcuatus, parce declivis, *Panopæo* formâ antennisque affinis. Appendices *maris* sexuales e sterno ortæ abdomineque tectæ. Pedes *maris* antici breves, crassi. Oculi breves. Abdomen *maris* 5-articulatum, versus basin sterno contiguo vix angustius.

G. 2. CURTONOTUS, *De Haan.*‡—Carapax antice arcuatus, parce declivis, margine antero-laterali rotundato. Appendices *maris* sexuales e basi pedum ortæ, in canaliculo sterni ductæ, deinde abdomine tectæ. Oculi breves. Pedes *maris* antici prælongi.

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* The species referred to is one from Valparaiso. The *G. variegatus*, according to its description by Edwards, and the figure by Guerin, has the joint quite oblong. The Valparaiso species, which we name the *Grapsus planifrons*, has this joint no longer than broad.

† Crust. Faun. Japon., p. 36. *Geryon*, Kröyer, Tidskrift, i, (1837,) p. 15, pl. 1.

‡ De Haan, Crust. Faun. Japon., p. 20. *Pseudorhombila*, Edwards, Crust. ii, 58.

G. 3. Gonoplax, *Leach.*—Carapax latus, trapezoidalis, antice elongatè transversus, angulis anticis acutis. Appendicibus *maris* sexualibus *Curtonoto* affinis. Oculi longi. Pedes *maris* antici prælongi.

2. Articulus maxillipedis externi 4tus angulo 3tii interno non articulatus.

Fam. II. MACROPHTHALMIDÆ.

Oculi tertiâ parte latitudinis carapacis non breviores. Carapax subquadratus, sæpissimè transversus, antice latissimus, angulis anticis acutis, lateribus non arcuatis. Antennæ internæ sive transversæ sive longitudinales. Articulus abdominis *maris* 2dus sterno contiguo angustior. Articulus maxillipedis 3tius costâ obliquâ piliferâ nunquam ornatus.

1. MACROPHTHALMINÆ.—Antennæ internæ transversæ, sub fronte insitæ. Antennæ externæ basi frontem appressæ. Articulus maxillipedis externi 4tus apertus.

G. 1. Cleistostoma, *DeH.*[*]—Carapax subquadratus, paulo transversus. Frons quartâ parte latitudinis carapacis vix brevior. Oculi longiusculi. Pedes antici *maris feminæve* breves. Articulus maxillipedis externi 3tius 2do vix minor, quadratus.

G. 2. Macrophthalmus, *Latr.*—Carapax latus, transversim rectangulatus. Frons angustissimus. Oculi longissimi. Articulus maxillipedis externi 3tius 2do multo minor.

2. OCYPODINÆ.—Antennæ internæ longitudinales, juxta frontem utrinque insitæ. Antennæ externæ fronte paulum remotæ. Articulus maxillipedis externi 4tus apertus, 3tius 2do minor.

1. *Articulus maxillipedis externi 2dus 3tio valde major.*

G. 1. Gelasimus, *Latr.*—Oculi graciles, corneâ parvulâ, parce oblongâ. Pedes *maris* antici portentosè inæqui. Manus minor debilis, digitis sæpissimè instar cochlearis excavatis aut spatulatis.

G. 2. Helœcius, *Dana.*[†]—Oculis habituque *Gelasimo* affinis. Pedes antici subæqui. Abdomen versus basin sterno contiguo vix angustius. Maxillipedes externi sulco lineari fere longitudinali superficie notati.

G. 3. Ocypoda, *Fabr.*—Oculi crassi, corneâ longâ, fere ad pedunculi basin productâ. Pedes *maris* antici inæqui, minoris digitis acuminatis. Abdomen basi angustum. Carapax transversus.

2. *Articulus maxillipedis externi 2dus 3tio parce major, non oblongus.*

G. 4. Scopimera,[‡] *DeH.*—Corpus globoso-cubicum. Pedes *maris* antici subæqui, non crassi. Habitu *Gelasimo* affinis.

3. DOTINÆ.—Articuli maxillipedis externi 4tus et sequentes 3tio celati.

Genus Doto, *DeH.*[§]—Corpus subquadratum.

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[*] Crust. Faun. Japon., p. 26.—From κλειστος, *shut*, and στομα, *mouth*—not *Cleistotoma.*

[†] Includes *Gelasimus cordiformis.*

[‡] Crust. Faun. Japon., p. 24.

[§] Crust. Faun. Japon., p. 24.

FAM. III. GRAPSIDÆ.

Oculi tertiâ parte latitudinis carapacis breviores. Carapax subquadratus, sæpius depressus, lateribus aut rectis aut arcuatis. Antennæ internæ transversæ. Articulus abdominis *maris* 2dus sterno postico sæpius vix angustior. Articulus maxillipedis externi 3tius sive inornatus sive costâ obliquâ ornatus. Palatum lineâ elevatâ viæ efferentis limite instructum.

1. GRAPSINÆ.—Antennæ internæ fronte tectæ. Articulus maxillipedis externi 3tius costâ obliquâ in 2dum productâ non notatus.

1. *Maxillipedes externi vix hiantes.*

G 1. PSEUDOGRAPSUS, *Edw.*—Articulus maxillipedis externi 3tius orbiculato-cordatus, aut subquadratus, 2do brevior. Frons dimidio latitudinis carapacis vix brevior. Carapax lateribus arcuatus.

G. 2. ERIOCHEIR, *DeH.**—Articulus maxillipedis externi 3tius uti in *Pseudograpso.* Frons dimidio latitudinis carapacis multo brevior. Carapax subpolygonatus.

G. 3. PLATYNOTUS, *De H.*†—Articulus maxillipedis externi 3tius 2do longior, margine postico valde obliquo.

G. 4. TRICHOPUS, *De H.*‡—Articulus maxillipedis externi 3tius latior quam longior, extus dilatatus. Pedum articuli 5tus 6tusque posticorum compressi denseque ciliati.

2. *Maxillipedes externi rhomboidicè hiantes.*

G. 5. GRAPSUS, *Lamk.*—Carapax transversim lineolatus, lateribus plus minusve arcuatis. Frons dimidio latitudinis carapacis brevior. Antennæ externæ juxta frontis latera oblique exsertæ. Tarsi spinulis armati.

G. 6. GONIOGRAPSUS, *Dana.*§—Carapax transversim lineolatus. lateribus rectis, postice sæpe convergentibus. Frons dimidio latitudinis carapacis longior. Antennæ externæ sub frontis margine sæpius exsertæ. Tarsi spinulis armati.

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* Faun. Japon., p. 32, 59.—The genus *Utica* of White, (Ann. Mag. Nat. Hist., xx, 206, and Crust. Voy. Samarang, 52, pl. 13, fig. 6,) appears to have the essential characteristics of Eriocheir, and like Eriocheir differs but little from Pseudograpsus. The front is narrow, the form subpolygonal, and it lives like E. Japonicus, in freshwater. The bushy hair on the hand of the Japan species is not necessarily a generic character. The name Eriocheir is therefore unfortunate, and it would be better for the science to substitute the name given by White.

The *E. penicillatus* of De Haan, (p. 60, pl. 11, f. 6,) appears to be a true Pseudograpsus.

† Faun. Jap., p. 34.

BRACHYNOTUS is the name of another genus by De Haan based on a Mediterranean species described by Risso, Hist. Nat. de l'Eur. Merid., v, 13. The male abdomen is but 4-jointed, the female 7-jointed; 2d and 3d joints of the outer maxillipeds of equal length, and the 3d truncate at either extremity.

‡ Faun. Jap., p. 32.—*Varuna* of Edwards, Crust. ii, 94.

§ In part, *Goniopsis* of De Haan, F. Jap., p. 33, and *Pachygrapsus* of Randall, J. Acad. Nat. Sci., Philad., viii, 126.

G. 7. PLANES, *Leach.*[*]—Carapax non lineolatus, lævis, fere quadratus, parce oblongus. Frons rectus. Articulus maxillipedis externi 3tius latior quam longior, cordatus. Tarsi spinulis armati.

G. 8. HEMIGRAPSUS, *Dana.*[†]—Carapax non lineolatus, fere lævis, lateribus plus minusve arcuatis. Frons rectus aut rectiusculus, antennis internis tranversis. Articulus maxillipedis externi 3tius fere orbiculato-cordatus. Tarsi inermes.

G. 9. CYRTOGRAPSUS, *Dana.*—Carapax gibbosus, subhexagonus non lineolatus. Frons sursum sinuosus, antennis internis obliquis, inplicis frontis insitis. Articulus maxillipedis externi 3tius suborbiculato-cordatus. Tarsi inermes.

2. SESARMINÆ.—Antennæ internæ fronte tectæ. Articulus maxillipedis externi 3tius costâ obliquâ in 2dum productâ notatus.

1. *Articulus maxillipedis externi 3tius apice rotundatus.*

G. 1. SESARMA, *Say.*[‡]—Carapax quadratus, sæpe partim lineolatus, lateribus rectis, fronte rectè prærupto. Abdomen *maris* versus basin sterno contiguo vix angustius. Tarsi sæpe armati.

G. 2. SARMATIUM, *Dana.*—Carapax subquadratus, lateribus arcuatis, fronte curvatim declivi. Abdomen *maris* versus basin sterno contiguo vix angustius. Tarsi inermes.

2. *Articulus maxillipedis externi 3tius apice truncatus et sæpe excavatus.*

G. 3. CYCLOGRAPSUS, *Edw.*[§]—Carapax lævis, medio planus, ad margines anteriores declivis, lateribus arcuatis, integris. Abdomen *maris* versus basin sterno contiguo vix angustius.

G. 4. CHASMAGNATHUS, *DeH.*[‖]—Carapax convexus, subquadratus, lateribus arcuatis et antice emarginatis, fronte curvatim declivi. Oculi breves. Abdomen *maris* versus basin sterno contiguo parce angustius.

G. 5. HELICE, *DeH.*[¶]—Carapax quadratus, lateribus parallelis, rectis. Oculi longiusculi. Abdomen *maris* versus basin sterno contiguo multo angustius.

3. PLAGUSINÆ. Antennæ internæ sinubus frontis longitudinalibus apertæ.

G. 1. ACANTHOPUS, *De H.*[**]—Corpus valde depressum. Articulus maxillipedis externi 3tius oblongus, parvus, apice 2di multo angustior. Ramus maxillipedis 1mi internus apice angustus et not transversus.

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[*] Mss. Mus. Brit.; the genus is recognized in Bowdich's "Madeira and Porto Santo," p. 151; and more lately in Bell's Brit. Crust., p. 133.—*Nautilograpsus* of Edwards, Crust. ii, 89.

[†] *Grapsus* (subgenus) of De Haan, F. Jap., p. 31; *Cyclograpsus*, in part, of Edwards, Crust. ii, 77.

[‡] Jour. Acad. Nat. Sci., i, 76, 1817. *Pachysoma*, of De Haan, Faun. Japon., p. 33.

[§] Crust. ii, 77.—Gnathochasmus, of M'Leay, Smith's Illust. Zool. S. Africa, and Cat. Crust. Brit. Mus. by A. White, 1847, 40.

[‖] Faun. Japon., p. 27.

[¶] Faun. Japon., p. 28.

[**] Faun. Japon., p. 29. Corresponds to *Plagusia clavimana.*

G. 2. Plagusia, *Latr.**—Corpus minus depressum, crassius. Articulus maxillipedis externi 3tius apice 2di vix angustius, raro longior quam latior. Ramus maxillipedis 1mi internus apice transversus.

Fam. IV. GECARCINIDÆ.

Oculi breves. Carapax obesus, paulo transversus, antice latus, curvatim declivis, lateribus arcuatis poneque oculos large rotundatis, vix dentatis. Antennæ internæ transversæ. Articulus abdominis maris 2dus sterno contiguo vix angustior. Articulus maxillipedis externi 3tius costâ obliquâ piliferâ non ornatus. Palatum lineâ elevatâ viæ efferentis limite non instructum.

1. UCAINÆ. Articulus maxillipedis externi 4tus apertus.

1. *Maxillipedes externi non hiantes.*

G. 1. Uca, *Leach.*—Articulus maxillipedis externi 4tus angulo 3tii externo insitus.

G. 4. Gecarcinucus, *Edw.*†—Articulus maxillipedis externi 4tus marginis medio apicalis 3tii insitus.

2. *Maxillipedes externi rhomboidicè hiantes.*

G. 3. Cardisoma, *Latr.*—Articulus maxillipedis externi 4tus apice 3tii externo insitus.

G. 4. Gecarcoidea, *Edw.*—Articulus maxillipedis externi 4tus marginis medio excavato apicalis 3tii insitus.

2. GECARCININÆ. Articuli maxillipedis externi 4tus et sequentes 3tio celatus.

G. 1. Gecarcinus.

Fam. V. PINNOTHERIDÆ.

Oculi breves, orbitis insiti, raro non retractiles. Carapax sive obesus sive depressus, raro paulo oblongus et interdum parce rostratus, lateribus valde rotundatis. Antennæ internæ aut transversæ aut obliquæ. Abdomen *maris* angustum, versus basin sterno contiguo valde angustius. [Species omnes parvæ.]

2. PINNOTHERINÆ. Articulus maxillipedis externi 2dus parvulus aut obsoletus. Corpus sive obesum sive depressum.

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* *Plagusia* and *Philyra* of De Haan, Faun. Japon., p. 31; the latter genus in his system including *Plagusia depressa* of authors, and the former the *P. squamosa*. The distinction between his two genera consists in this; the palpus of the outer maxillipeds in *Plagusia* has a flagellum, and that of *Philyra*, none. The name *Philyra* belongs to another genus of earlier date, instituted by Leach; moreover, the resemblance between the species of these groups is so close in other characters, that we hardly consider the distinction important as a generic character.

† Jacquemont's Voy. dans l' Inde, plate 1.

1. *Oculi approximati. Fossæ antennales conjunctæ.*

a. Pedes 8 postici sat graciles, subæqui.

G. 1. PINNOTHERA, *Latr.*—Corpus obesum. Carapax superficie integerrimus, nunquam areolatus. Oculi normales.

G. 2. FABIA, *Dana.*—Corpus obesum. Carapax superficie anticâ pone orbitas suturâ divisus. Oculi normales.

G. 3. XENOPHTHALMUS, *White.*[*]—Corpus obesum, fronte incisionibus duabus profundis oculos gerentibus instructo.

G. 4. XANTHASIA, *White.*[†]—Corpus depressum, supra fere planum margineque elevato utrinque instructum, fronte paulo producto. Oculi normales.

b. Pedes 4ti longiores et multo validiores.

G. 5. PINNIXA, *White.*[‡]—Corpus portentosè transversum.

2. *Oculi sat remoti. Fossæ antennales septo latiusculo sejunctæ. Articulus maxillipedis externi 2dus fere dimidii 3tii longitudine.*

G. 6. PINNOTHERELIA, *Lucas.*[§]—Pedes 8 postici sat graciles, subæqui. Corpus suborbiculare.

2. HYMENICINÆ. Corpus sæpius parce rostratum, depressum. Articulus maxillipedis externi 2dus dimidio 3tii major.

G. 1. HYMENOSOMA, *Leach.*—Carapax suborbiculatus, angulo extra-orbitali acuto. Frons angustissimus, non lobatus, oculis valde approximatis.

G. 2. HALICARCINUS, *White.*[‖]—Carapax suborbiculatus, angulo extra-orbitali nullo. Frons tridentatus, antennis internis inter dentes se porrigentibus, oculis remotioribus. Articulus maxillipedis externi 3tius 2do paulo major.

G. 3. HYMENICUS, *Dana.*[¶]—Carapax suborbiculatus, angulo extra-orbitali nullo. Frons productus, simplex aut lobatus, antennarum basin celans, oculis remotioribus. Articulus maxillipedis externi 3tius 2do paulo major. Pedes gracillimi.

G. 4. ELAMENA, *Edw.*—Carapax subtriangulatus, paulo oblongus, paulo rostratus, fronte antennas internas celante. Articulus maxillipedis externi 3tius 2do minor.

FAM. VI. MYCTIRIDÆ.

Corpus obesum. Carapax fronte perangustus, orbitis carens; antennæ internæ longitudinales.

Genus MYCTIRIS, *Latr.*

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[*] White, Ann. Mag. Nat. Hist., xviii, 178, and Voy. of Samarang, p. 63. The genus *Fabia* forms a transition from Pinnothera to Xenophthalmus; it includes the *P. chilensis.*

[†] Ann. Mag. Nat. Hist., xviii, 176.

[‡] Ann. Mag. Nat. Hist., xviii, 177. Includes Say's *Pinn. cylindricum,* Jour. Ac. Nat. Sci., Philad., i, 452.

[§] Crust. of D'Orbigny's S. Amer., p. 24. The genus forms a transition to the Gecarcinidæ.

[‖] Ann. Mag. Nat. Hist., xviii, 178.

[¶] The genus *Hymenosoma* belongs to the Cape of Good Hope, *Halicarcinus* to the extremity of S. America, and *Hymenicus* to New Zealand.

2. *Note on the genera Hexapus and Arges of De Haan;* by J. D. Dana.—The genus *Hexapus* of De Haan, in his first publication of its characters, (in Decade I. and II. of the Fauna Japonica, pp. 5 and 35,) is arranged near Pinnothera, which it resembles in its short obese form and small size. But in his last Decade, published in 1849, which contains his final remarks on classification, at p. xiv, the genus is referred to the vicinity of Pilumnus.—The outer maxillipeds are as in Pilumnus. The genus is peculiar in the 5th pair of legs being obsolete. The species is the *H. sexpes*, (Jap., p. 63 and pl. 11, f. 6, *Cancer sexpes* of Fabricius, Ent. Syst., Suppl., p. 344, f. 37.)

The genus *Arges* of De Haan, (Faun. Japon., p. 21,) includes only a fossil species. It is Cancroid in its outer maxillipeds and near Pilumnus and also Menippe. The abdomen in both sexes is 7-jointed; in the male oblong-trigonal, in the female ovate. The lateral margins of the carapax are parallel and entire, and the general form is much like that of *Cyclograpsus Audouinii* and the allied. Distance between the eyes one-fifth the breadth of the thorax.—Sp. *A. parallelus* (F. Jap., p. 52, and pl. 5, f. 4) from Japan.

Rec^d. Dec 13.1851

XIII.

Conspectus Crustaceorum quæ in Orbis Terrarum circumnavigatione, Carolo Wilkes e Classe Reipublicæ Fœderatæ Duce.

Lexit et descripsit J. D. DANA.

[Ex Academiæ Scientiarum Naturalium Philadelphiensis, Nuntiis, anno 1851, p. 247.]

Descriptio Familiarum Subfamiliarum Generorumque Crustaceorum Grapsoideorum in Ephemeride Scientiarum Americana Sillimani, vol. xii, p. 283, anno 1851, auctore edita. Synopsis brevis Familiarum et Subfamiliarum sequens:—

CRUSTACEA GRAPSOIDEA, (CYCLOMETOPA, Edwardsii.)

1. ARTICULUS MAXILLIPEDIS EXTERNI 4TUS ANGULO 3TII INTERNO ARTICULATUS.

Fam. I. GONOPLACIDÆ, vel GRAPSOIDEA CANCRIDICA. Gen. *Eucrate* De Haan, *Curtonotus* De H. (*Pseudorhombila*, Edw.), *Gonoplax* Leach.

2. ARTICULUS MAXILLIPEDIS EXTERNI 4TUS ANGULO 3TII INTERNO NON ARTICULATUS.

Fam. II. MACROPHTHALMIDÆ.

Sub-fam. 1. Macrophthalminæ.—Gen. *Cleistostoma*, De H., *Macrophthalmus*, Latr.

Subfam. 2. Ocypodinæ.—Gen. *Gelasimus*, Latr., *Helæcius*, Dana (*Gelasimum cordiformem* amplectens), *Ocypoda*, Fabr., *Scopimera*, De H.

Subfam. 3. Dotinæ.—Gen. *Doto*, De H.

Fam. III. GRAPSIDÆ.

Subfam. 1. Grapsinæ.—Gen. *Pseudograpsus*, Edw., *Eriocheir*, De H. (*Utica*, White), *Platynotus*, De H., *Brachynotus*, De H., *Trichopus*, De H. (*Varuna*, Edw.), quorum maxillipedibus externis vix hiantibus; *Grapsus*, Lamk., *Goniograpsus*, Dana (*Graps. cruentatum*, *messor*, etc., amplectens), *Planes* Leach (*Nautilograpsus*, Edw.), *Hemigrapsus*, Dana (*Cyclograpsus* partim, Edw.), *Cyrtograpsus*, *Dana*,—maxillipedibus externis rhomboidicé hiantibus.

Subfam. 2. Sesarminæ.—Gen., *Sesarma*, Say (*Pachysoma*, De H.), *Sarmatium*, Dana,—quorum, articulo maxillipedis externi 3tio apicem rotundato; *Cyclograpsus*, Edw. (*Gnathochasmus*, M'Leay), *Chasmagnathus*, De H., *Helice*, De H.,—quorum articulo maxillipedis externi 3tio apicem truncato et sæpe excavato.

Subfam. 3. Plagusinæ.—Gen. *Acanthopus*, De H. (*Plagusiam clavimanam* amplect), Plagusia, *Latr.*

Fam. IV. GECARCINIDÆ.

Subfam. 1. Ucainæ.—Gen. *Uca*, Leach, *Gecarcinucus*, Edw., *Cardisoma*, Latr. *Gecarcoidea*, Edw.

Subfam. 2. Gecarcininæ.—Gen. *Gecarcinus*.

Fam. V. PINNOTHERIDÆ.

Subfam. 1. Pinnotherinæ.—Gen. *Pinnothera*, Latr., *Fabia*, Dana, *Xenophthalmus*, White, *Xanthasia*, White, *Pinnixa*, White, *Pinnotherelia*, Lucas.

Subfam. 2. Hymenicinæ.—Gen. *Hymenosoma*, Leach, *Halicarcinus*, White, *Hymenicus*, Dana, *Elamena*, Edw.

Fam. VI. MYCTIRIDÆ.—Genus *Myctiris*.

Specierum Grapsoidearum adhuc ineditarum Descriptiones.

FAM. I. GONOPLACIDÆ, vel GRAPSOIDEA CANCRIDICA.

GENUS EUCRATE, *De Haan*.

Eucrate crassimanus.—Carapax nudus, bene areolatus, margine anterolaterali 4-dentato, dentibus tribus posticis prominenter triangulatis; fronte fere recto, medium emarginato. Pedes antici crassi, subæqui, nudi, læves, inermes, manu infra compressâ, carpo intus breviter acuminato, brachio in margine postico prope apicem unidentato. Pedes 8 postici sat graciles, marginibus ciliati, tarso recto, infra hirsuto.

Long. carapacis 10'''; lat. 13'''. *Hab.* in portu "Rio Janeiro?"

FAM. II. MACROPHTHALMIDÆ.

SUBFAM. I. MACROPHTHALMINÆ.

GENUS MACROPHTHALMUS.

Macrophthalmus Pacificus.—Carapax valde transversus, nudus et lævis, margine laterali arcuato, anterius 2-emarginato, emarginatione anteriore profundâ, posteriore obsolescente, fronte latiusculo et lateribus non excavato. Oculi graciles, sat breves, tertiam latitudinis carapacis partem longitudine æquantes. Pedes maris antici parvuli, læves, manu extus nudâ, subtiliter punctatâ et non costatâ, digito inferiore non deflexo. Pedes postici marginibus pubescentes, articulo pedis 4ti 3tio duplo latiore quam 5tus, apice cum dente acuto armato.

Long. carapacis 4''', lat. 5$\frac{2}{3}$'''. *Hab.* insulâ "Upolu."

SUBFAM. II. OCYPODINÆ.

GENUS GELASIMUS, *Latreille*.

Gelasimus nitidus.—*G. Duperreyi* similis. Carapax nitidus, antice paulo arcuatus, fronte angustissimo, paulo constricto. Pedes *maris* antici valde inæqui, manu majore multo compressâ et latâ, extus valde granulatâ, intus cristis duobus obliquis ornatâ, digito superiore laminato, fere duplo latiore quam inferior, inferiore juxta basin uni-dentigero. Pedes 8 postici fere nudi, articulo 3tio pedis 5ti perangusto.

Long. carapacis 6$\frac{1}{4}$'''. *Hab.* archipelagine "Viti."

GENUS HELŒCIUS, Dana.

Helœcius inornatus.—Carapax convexus, nudus, angulis anticis fronte posterioribus. Pedes antici sat breves; carpo non duplo longiore quam latiore, margine interno angulato; manu latâ, parte palmari paulo oblongâ. Segmentum abdominis ultimum breviter transversum, penultimo subito angustius. Articulus pedum 3tius supra tomentosus.

Long. carapacis 6'''; lat. 8$\frac{3}{4}$'''. *Hab.* ad oras australes Novi-Hollandiæ. *Helœcii cordiformis* (*Gelasimi cordiformis* auctorum) manus carpusque multo longiores quam in *inornato*; segmenta abdominis breviora, ultimo non subito angustiore quam penultimum.

FAM. III. GRAPSIDÆ.

SUBFAM. I. GRAPSINÆ.

GENUS PSEUDOGRAPSUS, *Edwards*.

Pseudograpsus Oregonensis.—Carapax parce areolatus, regione medianâ leviter circumscriptâ, cum lineâ transversâ antice levissimè notatâ et margine hujus regionis antice abrupto; fronte sinuoso; margine antero-laterali bi-emarginato, dentibus acutis. Pedes antici læves, manu extus nudâ, infra obsolete uni-costatâ, intus partim lanosâ, carpo lævi, digitis *maris* hiantibus. Pedes postici margines paulo hirsuti, præcipue articulorum 4ti et 5ti.

Long. carapacis 10‴; lat. 11½‴. *Hab.* in Oregoniæ freto "Puget."

Pseudograpsus nudus.—Carapax obsolete areolatus, regione medianâ vix circumscriptâ, cum lineâ elevatâ non intersectâ, areolâ intramedianâ (3 M) non circumscriptâ; fronte paulo arcuato; margine antero-laterali leviter bi-emarginato. Pedes toti nudi; antici æqui, manu extus nudâ, lævi, infra levissimè costatâ, intus partim lanosâ, carpo lævi; 8 postici paulo lati, tarso sulcato.

Long. carapacis 10½‴; lat. 12½‴. *Hab.* in Oregoniæ freto "Puget."

GENUS GRAPSUS.

1. Grapsus planifrons.—*G. variegato* similis, fronte fere horizontali, sat lato. Articulus maxillipedis externi 3tius vix oblongus. Margo carapacis lateralis bene arcuatus, antero-lateralis bi-emarginatus. Epistoma brevissimum. Pedes antici sat crassi, manu supra pustulatâ, extus infraque lævi; brachio apicem anticum 5—6-denticulato. Pedes 8 postici valde compressi, articulo 3tio pedis postici ad apicem inferiorem integro, penultimo supra scabro.

Long. carapacis 17⅓‴; lat. 19‴. *Hab.* ad oras juxta urbem "Valparaiso."

2. Grapsus longitarsis.—Carapax nudus, regione medianâ granulatus; fronte abrupto, perangusto; lateribus parce arcuatis, margine antero-laterali 1-emarginato. Articulus maxillipedis externi 3tius vix oblongus. Epistoma breve, utrinque acutè cristatum. Pedes antici sat parvi, manu carpoque supra parce granulatis, manu extus fere lævi, infra leviter costatâ. Pedes postici nudi, tarso elongato, spinulis dorsi multo brevioribus.

Long. carapacis 9½‴; lat. 10¾‴. *Hab.* in archipelagine "Paumotu."

Grapsus crinipes.—*G. livido* affinis. Carapax nudus, sublævis, fere quadratus, fronte sat abrupto, margine antero-laterali 1-emarginato. Pedes antici fere æqui, carpo manu digitoque mobili superne granulatis, manu extus fere lævi, nec costatâ; brachio ad apicem anticum 5—7-denticulato. Pedes postici sparsim criniti, articulo tertio lato, tarso perangusto, lineari, paulo curvato. Margo epistomatis posticus valde arcuatus.

Long. carapacis 9¾‴; lat. 11½‴. *Hab.* ad insulas "Sandwich."

GENUS GONIOGRAPSUS, *Dana.*

Goniograpsus simplex.—*G. vario* similis. Carapax fere quadratus, lateribus postice vix convergentibus, fronte paulo declivi, parce sinuoso, margine antero-laterali 1-emarginato. Carpus supra minutè rugatus; manus extus lævis, supra paulo rugata. Articuli pedum 8 posticorum 4tus 5tusque sparsim hirsuti; 3tius pedis postici apice inferiore truncatus, integer, pedis 4ti 3tiive 2—3-dentatus.

Long. carapacis 4‴; lat 4¾‴. *Hab.* in portu "Rio Janeiro." ?

Goniograpsus innotatus.—Carapax fere quadratus, lateribus postice convergentibus, fronte sat declivi, margine antero-laterali 1-emarginato, lineis transversis carapacis subtilissime crenulatis. Carpus supra lævis; manus supra extusque lævis; brachium apice 2—3-dentatum. Articulus pedis postici 3tius apice inferiore 3-dentatus.

Long. carapacis 7‴; lat. 9‴: long. frontis 5¼‴. *Hab.* ad oras Americæ Australis?

GENUS PLANES, *Leach.*

Planes cyaneus.—Pedes octo postici valde compressi, articulis tribus ultimis extus dense villoso-ciliatis. Abdomen maris angusto-triangulatum, duplo longius quam latius, 7-articulatum, articulo 3tio latiore, breviore quam 4tus, ultimo triangulato.

Long. 6‴—8‴. *Hab.* in mari Pacifico, lat. bor. 28°, long. orient. 174°.

GENUS HEMIGRAPSUS, *Dana.*

Hemigrapsus crassimanus.—Carapax subtiliter granulatus, margine antero-laterali leviter 2-emarginato, dentibus brevissimis, rotundatis, etiam emarginatione 3tiâ obsoletâ. Pedes *maris* antici crassi, nudi, carpo supra indentato. Pedes sequentes tenues, articulo 3tio supra fere nudo, infra lanoso, reliquis margines plerumque pubescentibus, 5to supra sulcato, tarso gracili. Abdomen maris perangustum, articulo ultimo anguste elongato.

Long. carapacis 6¼‴; lat. 6¾‴; long. frontis 2¾‴. *Hab.* ad insulas "Sandwich."

Hemigrapsus affinis.—*H. crassimano* fermè affinis. Manus *maris* crassa, minus tumida, antice paulo compressa, digitis hiantibus. Articulus pedis 2di, 3tii, 4tive 3tius infra villosus, supra partim pubescens. Pes 5tus articulis 4to 5to 6toque infra supraque pubescens. Margo carapacis antero-lateralis 3-emarginatus, emarginationibus duabus posticis parvulis.

Long. carapacis 7‴. *Hab.* portu "Rio Negro" Patagoniæ.

GENUS CYRTOGRAPSUS, *Dana.*

Cyrtograpsus angulatus.—Carapax angulato-gibbosus, granulosus, nudus, margine antero-laterali fere recto, 4-dentato, margine postero-laterali leviter uni-dentato. Pedes *maris* antici crassi, granulati, manu supra paulo truncatâ, carpo intus truncato. Pedes 8 postici fere nudi, articulo 5to supra sulcato, tarso sulcato.

Long. carapacis 17¾‴; lat. 21‴; long. frontis 6‴. *Hab.* portu "Rio Negro," Patagoniæ.

SUBFAM. II SESARMINÆ.

GENUS SESARMA, *Say.*

Sesarma obtusifrons.—Carapax quadratus, sat transversus, postice paulo angustior, omnino bene granulatus, granulis sparsis, lateraliter nec lineolatus, margine antero-laterali integro, fronte perpendiculari, supra rotundato, margine frontali arcuato. Epistoma granulatum. Pedes antici mediocres, carpo manuque supra granulatis, manu extus lævi, digitis nudis. Pedes postici granulati, articulo 5to brevissime sparsim hirsuto, 4to fere nudo.

Long. carapacis 4‴; lat. ant. 5¼‴, post. 4¼‴. *Hab.* ad insulas "Sandwich."

Sesarma obesum.—Carapax crassus, quadratus, parce areolatus, postice vix angustior, punctatus, non nitidus, lateribus fere arcuatis, nulla parte acutis, margine antero-laterali integro; fronte perpendiculari, supra fere recto, infra bene arcuato. Epistoma granulatum. Pedes antici breves, manu brevi, non granulatâ, superne integrâ et brevi. Pedes 8 postici angusti, articulo 4to non hirsuto, 5to sparsim breviter hirsuto, tarso breviter hirsuto.

Long. carapacis 6‴: lat. 6¾‴. *Hab.* freto "Balabac."

GENUS SARMATIUM, *Dana.*

Sarmatium crassum.—Carapax crassus, supra lævis, lateribus valde arcuatus, fronte fere recto, margine antero-laterali leviter 2-emarginato, dentibus rotundatis. Pedes antici *maris* breves, manu supra transversim 4—5-plicatâ, extus fere lævi, digito supra breviter 4-subspinoso, carpo plerumque lævi, supra paulo seriatim granulato.

Long. carapacis 6⅛‴; lat. 7‴; alt. thoracis 4¼‴; long. frontis 3‴. *Hab.* ad insulam Samoensem " Upolu."

GENUS CYCLOGRAPSUS, *Edwards.*

1. **Cyclograpsus cinereus.**—Carapax parce transversus, non areolatus, paulo nitidus, non granulatus. Orbita infra plerumque circumscripta. Articulus maxillipedis externi 3tius valde oblongus, 2do non brevior, pubescens, cristâ fere ad angulum 2di externo-posteriorem productâ. Digiti intus denticulati. Articulus pedis 2di 5tus apice non tomentosus, tarso non spinuloso, lineis angustis tomentosis supra ornato. Abdomen maris fere rectangulatum, postice parce angustius lateribus subparallelis, rectis, segmento postico elongate triangulato, triplo angustiore quam penultimum. Sternum pone aream buccalem pubescens.

Long. carapacis 6‴, lat. 7⅛‴: long. frontis 3‴. *Hab.* ad oras Chilenses; quoque ad insulas " Sandwich."

2. **Cyclograpsus granulatus.**—Carapax non areolatus, antice paulo granulatus. Orbita infra incompleta. Articulus maxillipedis externi 3tius vix oblongus, 2do multo brevior, nudus, cristâ tenui, pilosâ, angulum 2di externo-anteriorem intersecante tantum, 2dus nudus. Articulus pedis 2di 5tus apice non tomentosus, tarso lineis tomentosis paulo laxis ornato, non spinuloso. Manus glabra, nitida, digitis *maris* intus non denticulatis. Abdomen *maris* eo *C. cinerei* fere simile, lateribus vix excavatis, segmento postico parce oblongo, apice late rotundato. Sternum pone aream buccalem nudum.

Long. carapacis 3.7‴; lat. 4.6‴. *Hab.* ad oras insulæ " Maui" Hawaiensis.

GENUS CHASMAGNATHUS, *De Haan.*

1. **Chasmagnathus subquadratus.**—Carapax convexus, lævis, postice paulo punctatus, paulo areolatus, fronte margineque antero-laterali uti in *C. granulato*, lateribus parce arcuatis, areolâ præmedianâ antice vix notatâ. Maxillipedes externi sternique pars proxima brevissime hirsuti. Pedes antici posticique plerumque uti in *C. lævi*, manu non granulatâ, minute punctatâ. Regio pterygostomiana breviter reticulata. Articulus pedis 2di 5tus infra non tomentosus, supra anticeque tomentosus. Abdomen lateribus excavatum, basi latius, longius ciliatum.

Long. carapacis 8‴; lat. 9¼‴; long. frontis inter oculos 4‴. *Hab.* ad oras Novi-Zealandiæ? Novi-Hollandiæ orientalis?

2. **Chasmagnathus granulatus.**—Carapax valde convexus, sat areolatus; fronte sinuato, medio depresso et juxta marginem medianum minute apiculato; margine antero-laterali tenui, 2-inciso, dentibus triangulatis, acutis. Margo epistomatis inferior fronte prominentior. Pedes antici *maris* crassi, subæqui, granulati, carpo intus acuto, manu supra tenui et paulo obtusâ. Pedes postici valde compressi, articulis 4to 5to dorso paulo tomentosis, 5to pedis 2di infra non

tomentoso, tarso tenui, tenuiter sulcato et sulcis hirsuto. Abdomen *maris* lateribus fere rectum.

Long. carapacis 15‴; lat. 17½‴; long. frontis inter oculos 7‴. *Hab.* palude juxta lacum "Peteninga" urbi "Rio Janeiro" vicinum.

3. **Chasmagnathus lævis.**—Carapax convexus, lævis, vix granulatus, paulo areolatus, fronte margineque antero-laterali plerumque uti in *C. granulato*, fronte juxta marginem medianum non apiculato, areolâ præmedianâ antice præruptâ. Epistoma fronte non prominentius. Pedes antici *maris* æqui, manu leviter granulatâ, supra non tenui. Pedes postici angustiores, articulus pedis 2di 5tus infra antice supraque tomentosus. Abdomen lateribus fere rectum vel obsolete excavatum.

Long. carapacis 11½‴; lat. 14‴; long. frontis inter oculos 6‴. *Hab.* in portu "Sydney" Novi-Hollandiæ Orientalis.

GENUS HELICE, *De Haan.*

Helice crassa.—Carapax subquadratus, margine laterali antice bi-emarginato, fronte dimidii latitudinis carapacis longitudine. Manus brevis et lata, superne subcarinata, extus fere lævis, minute granulata. Articulus pedum sequentium 3tius supra subacutus. Regio pterygostomiana granulata, leviter pubescens.

Long. carapacis 5½‴; lat. 6¼‴. *Hab.* ad oras "Illawarræ" Novi-Hollandiæ Orientalis.

SUBFAM. III. PLAGUSINÆ.

GENUS ACANTHOPUS, *De Haan.*

Acanthopus abbreviatus.—Carapax subquadratus, non oblongus, supra omnino tomentosus lineis nudis nullis; fronte uti in *planissimo* sed latiore; margine antero-laterali 4-dentato, dente 2do inconspicuo. Pedes *maris* antici æqui, manu vix inflatâ, supra sulcatâ. Abdomen *maris* angustius, lateribus excavatum.

Long. carapacis *maris* 6‴. *Hab.* ad oras insulæ "Tahiti."

GENUS PLAGUSIA.

1. **Plagusia speciosa.**—*P. squamosæ* affinis. Margo antero-lateralis 3-dentatus.

Long. carapacis 14‴: lat. 15‴. *Hab.* archipelaginis "Paumotu" insulâ "Waterland."

2. **Plagusia glabra.**—Carapax lævis, glaber, margine antero-laterali 4-dentato, fronte superne oblique subcristato, non spinigero. Pedes *maris* antici perbreves, parte manus palmari breviore quam altiore, supra granulatâ, extus lævi et non costatâ, carpo fere lævi. Articulus pedum 8 posticorum 3tius lævis, non multispinosus. Articulus maxillipedis externi 3tius quadratus, parce oblongus.

Long. carapacis maris 9‴; lat., dentibus exclusis, 9‴, dentibus inclusis 9⅔‴. *Hab.* ad oras Novi-Hollandiæ Orientalis.

FAM. IV. GECARCININÆ.

SUBFAM. I. UCAINÆ.

GENUS CARDISOMA.

Cardisoma obesum.—Carapax obesus, undique convexus, lateribus anterolateralibus valde tumidis, linea angulove marginis omnino carentibus. Articulus antennæ externæ 1mus transversus, apice utrinque productus et subacutus, superficie granulatus, processu orbitam antennamque sejungente subtriangulato, trihedrico, non truncato.

Long. carapacis 3″; lat. 3⅔″; long. frontis inter oculos 12‴; lat. areæ buccalis antice 9‴. *Hab.* archipelagine "Paumotu."

Cardisoma hirtipes.—Carapax longitudinaliter convexus, margine laterali antice notatus, prope dentem post-orbitalem minute apiculato, areolâ præmedianâ antice juxta frontem paulo abruptâ, regione pterygostomianâ pilosâ. Processus præorbitalis orbitam antennamque externam sejungens triangulatus, trihedricus. Articulus antennæ externæ 1mus rectangulatus apice recte truncatus. Pedes *maris* antici crassi, subæqui, sat breves, manu punctatâ, digitis late hiantibus. Pedes postici hirti.

Long. carapacis *maris* 22½‴; lat. 28‴; long. frontis 7½‴; lat. areæ buccalis antice 5⅜‴, postice 8¼‴. *Hab.* insulis "Viti."

FAM. V. PINNOTHERIDÆ.

SUBFAM. I. PINNOTHERINÆ.

GENUS PINNOTHERA, *Latreille.*

Pinnothera faba.—Carapax late transversus, nudus, paulo nitidus. Maxillipedes externi nudi, vix obliqui. Oculi parvuli. Pedes antici *feminæ* breves, manu supra rotundata, digitis subtiliter pubescentibus. Pedes postici perbreves, crassiusculi, articulo 3tio pedis 4ti triplo breviore quam carapacis latitudo, tarso brevi, basi crasso, subconico, apice uncinato.

Long. carapacis *feminæ* 5½‴; lat. 8‴. *Hab.* in freto "Puget" Oregoniæ.

GENUS FABIA, *Dana.*

Fabia subquadrata.—Carapax (feminæ) subquadratus, antice rotundatus, parce latior quam longior, nudus, nitidus. Maxillipedes externi nudi, valde obliqui. Oculi minimi. Suturæ post-frontales fere parallelæ. Pedes antici (feminæ) sat tenues, manu elongatâ, infra 2 lineis pubescentibus (lineâ unâ usque ad digiti extremitatem productâ) ornatâ. Pedes 8 postici sat graciles, articulo 3tio supra partim pubescente, 5to infra pubescente, tarso brevi, dimidii articuli 5ti longitudine, uncinato.

Long. carapacis 5¾‴; lat. 6¾‴; lat. inter suturas post-frontales 2¼‴. *Hab.* in freto "Puget" Oregoniæ.

SUBFAM. II. HYMENICINÆ.

GENUS HALICARCINUS, *White.*

Halicarcinus pubescens.—Carapax ovato-orbicularis pone medium latior. Pedes longitudine mediocres, 8 postici laxe pubescentes. Abdomen *maris* angustum, fere lineare, apice triangulatum.

Long. 1¼‴. *Hab.* in mari, juxta Patagoniam orientalem, altitudine 50 brachiorum.

GENUS HYMENICUS, *Dana.*

1. Hymenicus varius.—Carapax lævis, nudus, planus, ovato-orbiculatus, vix transversus, fronte expansus et trilobatus, lobis rotundatis, margine antero-laterali dentibus duobus obsoletis remote armato. Abdomen *maris* angustum, subtriangulatum, segmento basali latiore et utrinque triangulato, penultimo angustiore

quam precedens, ultimo paulo oblongo, apice rotundato. Pedes antici mediocres; 8 sequentes tenuissimi, nudi aut nudiusculi.

Long. 2‴—3‴. *Hab.* ad oras portus "Bay of Islands" Novi-Zealandiæ.

2. Hymenicus Novi-Zealandiæ.—Carapacem, frontem, pedesque *H. vario* similis. Abdomen *maris* lineare, segmentis penultimo precedentibusque duobus latitudine æquis, ultimo triangulato, non oblongo, obtuso. An varietas *varii?*

Hab. ad oras portus "Bay of Islands."

3. Hymenicus pubescens.—Carapax pubescens, ferme orbiculatus aut vix ovato-orbiculatus, postice arcuatus, rostro parvulo simplicissimo, rotundato et marginem pubescente, margine carapacis omnino integro, inermi. Abdomen *maris* angustum, lineari-subtriangulatum, segmentis penultimo precedentibusque duobus fere æquis, postice parce angustantibus, ultimo subtriangulato, paulo oblongo, obtuso. Pedes breviter pubescentes; antici mediocres; sequentes tenues.

Long. 1½‴—2‴. *Hab.* in portu "Bay of Islands."

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EXTRACTED FROM THE AMERICAN JOURNAL OF SCIENCE AND ARTS, VOL. XII.
SECOND SERIES, SEPT., 1851.

ON THE
CLASSIFICATION
OF THE
CRUSTACEA GRAPSOIDEA.

By JAMES D. DANA.

The Grapsoidea, in the system here explained, correspond to the Cyclometopa of Edwards, excepting that we separate the Telphusa, group and place it with the Cancroidea.*

A few of the species have the fourth joint of the outer maxillipeds articulated by the inner angle with the third, as in the Cancroidea: of these we make the family Gonoplacidæ, or the Grapsoidea Cancridica.

In all the other species, this articulation is remote from the inner angle, being either near the middle of the apical margin or at the outer angle. The near universality of this character among the Grapsoidea is proof of its importance, and sustains us in removing from along side of the Gonoplacidæ the Macrophthalmi.

The Macrophthalmus and Ocypod groups are closely related, and with Doto make our *second* family the Macrophthalmidæ,—characterized by the great length of the eye-peduncles, the very narrow front, and the 2nd joint of the male abdomen narrower than the corresponding part of the sternum.

The Grapsus family—the third has the same limits as in the system of Milne Edwards. The form is subquadrate, with the lateral margin anteriorly more or less acute; the front broad; the eyes of moderate length or short; the second joint of the male abdomen usually not narrower than the corresponding part of the sternum. We give more importance than has hitherto been done to the fact of the outer maxillipeds having an oblique piliferous crest on the surface or not; and we make this characteristic the basis of a subdivision of the Grapsidæ (exclusive of the Plagusinæ) into the subfamilies *Grapsinæ* and *Sesarminæ*,

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* This volume, p. 130.

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DIVISION OF CRUSTACEA

the former characterized by the absence of this crest. A survey of the groups will at once show, we believe, that we follow natural lines in this subdivision. The *Plagusinæ* are distinguished by longitudinal sinuses in the front of the carapax for the inner antennæ.

The family GECARCINIDÆ—the fourth—is the same in limits as the "Gecarciniens" of Edwards,—the species are remarkable for their thick obese forms, high rounded front and antero-lateral margin, and for having the second joint of the male abdomen but slightly narrower than the corresponding part of the sternum.

The family PINNOTHERIDÆ—the fifth—differs from the "Pinnotheriens" of Edwards in the removal of the genus *Doto*, closely related to Ocypod, and also the genus *Myctiris*, an aberrant form between Pinnothera, Doto and Helœcius, but very peculiar in being narrow anteriorly, and having no distinct orbits for the retraction of the eyes. The genus *Myctiris* constitutes the last or sixth family MYCTIRIDÆ. In the Pinnotheridæ, the male abdomen is much narrower than the sternum behind, which character separates them from the Gecarcinidæ.

We do not believe in a properly lineal order in classification; yet the succession we have given to the families is a natural succession, as nearly as can be made. The *first*, Gonoplacidæ, link the Grapsoidea with the Cancroidea, and the genus Eucrate is very near Eriphia and Panopæus in form. The *second*, Macrophthalmidæ, is closely allied to the first, so much so that Marophthalmus and Gonoplax have been arranged in the same group. The *third*, Grapsidæ, are again very near the Macrophthalmidæ, and the genus Helice is almost as correctly placed with one as the other. Thence the transition is as gradual also to the *fourth* or Gecarcinidæ, and from the fourth to the *fifth* or Pinnotheridæ, and from the fifth to the *sixth* or Myctiridæ. Still, there are other relations of somewhat less prominence which this order does not exhibit. That of *Elamena* to Inachus has long been recognized.

The Gonoplacidæ are placed in the Cancer group by DeHaan, who neglected the important distinction based on the male verges. The other genera, exclusive of Pinnothera and the species related, he divides into two groups, the *Ocypus* and *Grapsus* groups, the former having the fourth joint of the outer maxillipeds articulated with the outer angle of the third, and the latter, articulated with the middle of the apical margin;—a distinction difficult to carry out and dividing natural groups, as the Gecarcinidæ, Grapsidæ, &c. His genera of the OCYPUS group, are, Doto, Scopimera, Myctiris, Gelasimus, Macrophthalmus, Cleistostoma, Cardisoma, Chasmagnathus, Helice, Uca, Ocypoda, Acanthopus (a division of Plagusia); those of the GRAPSUS group, are, Gecarcinus, Philyra (division of Plagusia), Plagusia (another division), Grapsus, Trichopus, Eriocheir, Pachysoma, Goniopsis, Platynotus, Brachynotus, Nautilograpsus, Cyclograpsus, and in his "Decas Septima," published in 1849, he unites with the group, Pinnotheres and Hymenosoma.

We add a few words on the genera of GRAPSIDÆ. Both De Haan* and Randall† have divided the Grapsus of authors into two genera, according to the *short* or *oblong* form of the third joint of the outer maxillipeds. The former are De Haan's *Grapsi*, and Randall's *Pachygrapsi;* the latter De Haan's *Goniopses* and Randall's *Grapsi.* But the length of this joint, as we have shown in many other cases, is a characteristic of small importance, and such a basis for subdivision is therefore wrong. There are two natural groups; one with arcuate sides, like *G. pictus*, and the other with straight sides like *G. cruentatus* and *G. messor;* and in each, this joint may be short or oblong. *G. variegatus*, like *G. pictus*, has the joint oblong; yet a species every way similar and hitherto referred to the *variegatus* has the same joint not longer than broad.* We hence reject this subdivision and adopt two others, viz: *Grapsus*, having arcuate sides, and *Goniograpsus*, having straight sides. The latter forms the transition to *Sesarma* and *G. cruentatus* is like the *Sesarmæ* in habit.

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* Faun. Japon., p. 33, 1833.

† Jour. Acad. Nat. Sci., Philad., viii, 124, 126.

The genus *Cyclograpsus* of Edwards is characterized by its author as having a piliferous crest on the outer maxillipeds, though exceptions are admitted. Subsequently, M'Leay made his genus *Gnathochasmus* on the same type. Some recent authors have taken M'Leay's name for these typical species and restricted *Cyclograpsus* to the exceptions. We find no authority in the rules laid down by the British Association, or in the nature of the case, for thus perverting Cyclograpsus from its true type as first established, and we therefore make Gnathochasmus a synonym of it, and adopt a new name for the species without the piliferous crest. This we believe is due to M. Edwards.

The following is a synopsis of the Families, Subfamilies and Genera of Grapsoidea:—

CRUSTACEA GRAPSOIDEA.

1. ARTICULUS MAXILLIPEDIS EXTERNI 4TUS ANGULO 3TII INTERNO ARTICULATUS.

FAM. I. GONOPLACIDÆ.

Carapax transversus. Frons quartâ parte latitudinis carapacis longior, paulo deflexus, lamellatus. Antennæ internæ transversæ. Articulus abdominis *maris* 2dus sterno contiguo angustior.

G. 1. EUCRATE, *De Haan.*†—Carapax antice arcuatus, parce declivis, *Panopæo* formâ antennisque affinis. Appendices *maris* sexuales e sterno ortæ abdomineque tectæ. Pedes *maris* antici breves, crassi. Oculi breves. Abdomen *maris* 5-articulatum, versus basin sterno contiguo vix angustius.

G. 2. CURTONOTUS, *De Haan.*‡—Carapax antice arcuatus, parce declivis, margine antero-laterali rotundato. Appendices *maris* sexuales e basi pedum ortæ, in canaliculo sterni ductæ, deinde abdomine tectæ. Oculi breves. Pedes *maris* antici prælongi.

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* The species referred to is one from Valparaiso. The *G. variegatus*, according to its description by Edwards, and the figure by Guerin, has the joint quite oblong. The Valparaiso species, which we name the *Grapsus planifrons*, has this joint no longer than broad.

† Crust. Faun. Japon., p. 36. *Geryon*, Kröyer, Tidskrift, i, (1837,) p. 15, pl. 1.

‡ De Haan, Crust. Faun. Japon., p. 20. *Pseudorhombila*, Edwards, Crust. ii, 58.

G. 3. Gonoplax, *Leach.*—Carapax latus, trapezoidalis, antice elongatè transversus, angulis anticis acutis. Appendicibus *maris* sexualibus *Curtonoto* affinis. Oculi longi. Pedes *maris* antici prælongi.

2. Articulus maxillipedis externi 4tus angulo 3tii interno non articulatus.

Fam. II. MACROPHTHALMIDÆ.

Oculi tertiâ parte latitudinis carapacis non breviores. Carapax subquadratus, sæpissimè transversus, antice latissimus, angulis anticis acutis, lateribus non arcuatis. Antennæ internæ sive transversæ sive longitudinales. Articulus abdominis *maris* 2dus sterno contiguo angustior. Articulus maxillipedis 3tius costâ obliquâ piliferâ nunquam ornatus.

1. MACROPHTHALMINÆ.—Antennæ internæ transversæ, sub fronte insitæ. Antennæ externæ basi frontem appressæ. Articulus maxillipedis externi 4tus apertus.

G. 1. Cleistostoma, *DeH.*[*]—Carapax subquadratus, paulo transversus. Frons quartâ parte latitudinis carapacis vix brevior. Oculi longiusculi. Pedes antici *maris feminæve* breves. Articulus maxillipedis externi 3tius 2do vix minor, quadratus.

G. 2. Macrophthalmus, *Latr.*—Carapax latus, transversim rectangulatus. Frons angustissimus. Oculi longissimi. Articulus maxillipedis externi 3tius 2do multo minor.

2. OCYPODINÆ.—Antennæ internæ longitudinales, juxta frontem utrinque insitæ. Antennæ externæ fronte paulum remotæ. Articulus maxillipedis externi 4tus apertus, 3tius 2do minor.

1. *Articulus maxillipedis externi 2dus 3tio valde major.*

G. 1. Gelasimus, *Latr.*—Oculi graciles, corneâ parvulâ, parce oblongâ. Pedes *maris* antici portentosè inæqui. Manus minor debilis, digitis sæpissimè instar cochlearis excavatis aut spatulatis.

G. 2. Helœcius, *Dana.*[†]—Oculis habituque *Gelasimo* affinis. Pedes antici subæqui. Abdomen versus basin sterno contiguo vix angustius. Maxillipedes externi sulco lineari fere longitudinali superficie notati.

G. 3. Ocypoda, *Fabr.*—Oculi crassi, corneâ longâ, fere ad pedunculi basin productâ. Pedes *maris* antici inæqui, minoris digitis acuminatis. Abdomen basi angustum. Carapax transversus.

2. *Articulus maxillipedis externi 2dus 3tio parce major, non oblongus.*

G. 4. Scopimera,[‡] *DeH.*—Corpus globoso-cubicum. Pedes *maris* antici subæqui, non crassi. Habitu *Gelasimo* affinis.

3. DOTINÆ.—Articuli maxillipedis externi 4tus et sequentes 3tio celati.

Genus Doto, *DeH.*[§]—Corpus subquadratum.

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[*] Crust. Faun. Japon., p. 26.—From κλειστος, *shut*, and στομα, *mouth*—not *Cleistotoma.*

[†] Includes *Gelasimus cordiformis.*

[‡] Crust. Faun. Japon., p. 24.

[§] Crust. Faun. Japon., p. 24.

FAM. III. GRAPSIDÆ.

Oculi tertiâ parte latitudinis carapacis breviores. Carapax subquadratus, sæpius depressus, lateribus aut rectis aut arcuatis. Antennæ internæ transversæ. Articulus abdominis *maris* 2dus sterno postico sæpius vix angustior. Articulus maxillipedis externi 3tius sive inornatus sive costâ obliquâ ornatus. Palatum lineâ elevatâ viæ efferentis limite instructum.

1. GRAPSINÆ.—Antennæ internæ fronte tectæ. Articulus maxillipedis externi 3tius costâ obliquâ in 2dum productâ non notatus.

1. *Maxillipedes externi vix hiantes.*

G 1. PSEUDOGRAPSUS, *Edw.*—Articulus maxillipedis externi 3tius orbiculato-cordatus, aut subquadratus, 2do brevior. Frons dimidio latitudinis carapacis vix brevior. Carapax lateribus arcuatus.

G. 2. ERIOCHEIR, *DeH.**—Articulus maxillipedis externi 3tius uti in *Pseudograpso.* Frons dimidio latitudinis carapacis multo brevior. Carapax subpolygonatus.

G. 3. PLATYNOTUS, *De H.*†—Articulus maxillipedis externi 3tius 2do longior, margine postico valde obliquo.

G. 4. TRICHOPUS, *De H.*‡—Articulus maxillipedis externi 3tius latior quam longior, extus dilatatus. Pedum articuli 5tus 6tusque posticorum compressi denseque ciliati.

2. *Maxillipedes externi rhomboidicè hiantes.*

G. 5. GRAPSUS, *Lamk.*—Carapax transversim lineolatus, lateribus plus minusve arcuatis. Frons dimidio latitudinis carapacis brevior. Antennæ externæ juxta frontis latera oblique exsertæ. Tarsi spinulis armati.

G. 6. GONIOGRAPSUS, *Dana.*§—Carapax transversim lineolatus. lateribus rectis, postice sæpe convergentibus. Frons dimidio latitudinis carapacis longior. Antennæ externæ sub frontis margine sæpius exsertæ. Tarsi spinulis armati.

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* Faun. Japon., p. 32, 59.—The genus *Utica* of White, (Ann. Mag. Nat. Hist., xx, 206, and Crust. Voy. Samarang, 52, pl. 13, fig. 6,) appears to have the essential characteristics of Eriocheir, and like Eriocheir differs but little from Pseudograpsus. The front is narrow, the form subpolygonal, and it lives like E. Japonicus, in freshwater. The bushy hair on the hand of the Japan species is not necessarily a generic character. The name Eriocheir is therefore unfortunate, and it would be better for the science to substitute the name given by White.

The *E. penicillatus* of De Haan, (p. 60, pl. 11, f. 6,) appears to be a true Pseudograpsus.

† Faun. Jap., p. 34.

BRACHYNOTUS is the name of another genus by De Haan based on a Mediterranean species described by Risso, Hist. Nat. de l'Eur. Merid., v, 13. The male abdomen is but 4-jointed, the female 7-jointed; 2d and 3d joints of the outer maxillipeds of equal length, and the 3d truncate at either extremity.

‡ Faun. Jap., p. 32.—*Varuna* of Edwards, Crust. ii, 94.

§ In part, *Goniopsis* of De Haan, F. Jap., p. 33, and *Pachygrapsus* of Randall, J. Acad. Nat. Sci., Philad., viii, 126.

G. 7. PLANES, *Leach.*[*]—Carapax non lineolatus, lævis, fere quadratus, parce oblongus. Frons rectus. Articulus maxillipedis externi 3tius latior quam longior, cordatus. Tarsi spinulis armati.

G. 8. HEMIGRAPSUS, *Dana.*[†]—Carapax non lineolatus, fere lævis, lateribus plus minusve arcuatis. Frons rectus aut rectiusculus, antennis internis tranversis. Articulus maxillipedis externi 3tius fere orbiculato-cordatus. Tarsi inermes.

G. 9. CYRTOGRAPSUS, *Dana.*—Carapax gibbosus, subhexagonus non lineolatus. Frons sursum sinuosus, antennis internis obliquis, inplicis frontis insitis. Articulus maxillipedis externi 3tius suborbiculato-cordatus. Tarsi inermes.

2. SESARMINÆ.—Antennæ internæ fronte tectæ. Articulus maxillipedis externi 3tius costâ obliquâ in 2dum productâ notatus.

1. *Articulus maxillipedis externi 3tius apice rotundatus.*

G. 1. SESARMA, *Say.*[‡]—Carapax quadratus, sæpe partim lineolatus, lateribus rectis, fronte rectè prærupto. Abdomen *maris* versus basin sterno contiguo vix angustius. Tarsi sæpe armati.

G. 2. SARMATIUM, *Dana.*—Carapax subquadratus, lateribus arcuatis, fronte curvatim declivi. Abdomen *maris* versus basin sterno contiguo vix angustius. Tarsi inermes.

2. *Articulus maxillipedis externi 3tius apice truncatus et sæpe excavatus.*

G. 3. CYCLOGRAPSUS, *Edw.*[§]—Carapax lævis, medio planus, ad margines anteriores declivis, lateribus arcuatis, integris. Abdomen *maris* versus basin sterno contiguo vix angustius.

G. 4. CHASMAGNATHUS, *DeH.*[‖]—Carapax convexus, subquadratus, lateribus arcuatis et antice emarginatis, fronte curvatim declivi. Oculi breves. Abdomen *maris* versus basin sterno contiguo parce angustius.

G. 5. HELICE, *DeH.*[¶]—Carapax quadratus, lateribus parallelis, rectis. Oculi longiusculi. Abdomen *maris* versus basin sterno contiguo multo angustius.

3. PLAGUSINÆ. Antennæ internæ sinubus frontis longitudinalibus apertæ.

G. 1. ACANTHOPUS, *De H.*[**]—Corpus valde depressum. Articulus maxillipedis externi 3tius oblongus, parvus, apice 2di multo angustior. Ramus maxillipedis 1mi internus apice angustus et not transversus.

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[*] Mss. Mus. Brit.; the genus is recognized in Bowdich's "Madeira and Porto Santo," p. 151; and more lately in Bell's Brit. Crust., p. 133.—*Nautilograpsus* of Edwards, Crust. ii, 89.

[†] *Grapsus* (subgenus) of De Haan, F. Jap., p. 31; *Cyclograpsus,* in part, of Edwards, Crust. ii, 77.

[‡] Jour. Acad. Nat. Sci., i, 76, 1817. *Pachysoma,* of De Haan, Faun. Japon., p. 33.

[§] Crust. ii, 77.—Gnathochasmus, of M'Leay, Smith's Illust. Zool. S. Africa, and Cat. Crust. Brit. Mus. by A. White, 1847, 40.

[‖] Faun. Japon., p. 27.

[¶] Faun. Japon., p. 28.

[**] Faun. Japon., p. 29. Corresponds to *Plagusia clavimana.*

G. 2. Plagusia, *Latr.**—Corpus minus depressum, crassius. Articulus maxillipedis externi 3tius apice 2di vix angustius, raro longior quam latior. Ramus maxillipedis 1mi internus apice transversus.

Fam. IV. GECARCINIDÆ.

Oculi breves. Carapax obesus, paulo transversus, antice latus, curvatim declivis, lateribus arcuatis poneque oculos large rotundatis, vix dentatis. Antennæ internæ transversæ. Articulus abdominis maris 2dus sterno contiguo vix angustior. Articulus maxillipedis externi 3tius costâ obliquâ piliferâ non ornatus. Palatum lineâ elevatâ viæ efferentis limite non instructum.

1. UCAINÆ. Articulus maxillipedis externi 4tus apertus.

1. *Maxillipedes externi non hiantes.*

G. 1. Uca, *Leach.*—Articulus maxillipedis externi 4tus angulo 3tii externo insitus.

G. 4. Gecarcinucus, *Edw.*†—Articulus maxillipedis externi 4tus marginis medio apicalis 3tii insitus.

2. *Maxillipedes externi rhomboidicè hiantes.*

G. 3. Cardisoma, *Latr.*—Articulus maxillipedis externi 4tus apice 3tii externo insitus.

G. 4. Gecarcoidea, *Edw.*—Articulus maxillipedis externi 4tus marginis medio excavato apicalis 3tii insitus.

2. GECARCININÆ. Articuli maxillipedis externi 4tus et sequentes 3tio celatus.

G. 1. Gecarcinus.

Fam. V. PINNOTHERIDÆ.

Oculi breves, orbitis insiti, raro non retractiles. Carapax sive obesus sive depressus, raro paulo oblongus et interdum parce rostratus, lateribus valde rotundatis. Antennæ internæ aut transversæ aut obliquæ. Abdomen *maris* angustum, versus basin sterno contiguo valde angustius. [Species omnes parvæ.]

2. PINNOTHERINÆ. Articulus maxillipedis externi 2dus parvulus aut obsoletus. Corpus sive obesum sive depressum.

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* *Plagusia* and *Philyra* of De Haan, Faun. Japon., p. 31; the latter genus in his system including *Plagusia depressa* of authors, and the former the *P. squamosa.* The distinction between his two genera consists in this; the palpus of the outer maxillipeds in *Plagusia* has a flagellum, and that of *Philyra*, none. The name *Philyra* belongs to another genus of earlier date, instituted by Leach; moreover, the resemblance between the species of these groups is so close in other characters, that we hardly consider the distinction important as a generic character.

† Jacquemont's Voy. dans l' Inde, plate 1.

1. *Oculi approximati. Fossæ antennales conjunctæ.*

a. Pedes 8 postici sat graciles, subæqui.

G. 1. PINNOTHERA, *Latr.*—Corpus obesum. Carapax superficie integerrimus, nunquam areolatus. Oculi normales.

G. 2. FABIA, *Dana.*—Corpus obesum. Carapax superficie anticâ pone orbitas suturâ divisus. Oculi normales.

G. 3. XENOPHTHALMUS, *White.*[*]—Corpus obesum, fronte incisionibus duabus profundis oculos gerentibus instructo.

G. 4. XANTHASIA, *White.*[†]—Corpus depressum, supra fere planum margineque elevato utrinque instructum, fronte paulo producto. Oculi normales.

b. Pedes 4ti longiores et multo validiores.

G. 5. PINNIXA, *White.*[‡]—Corpus portentosè transversum.

2. *Oculi sat remoti. Fossæ antennales septo latiusculo sejunctæ. Articulus maxillipedis externi 2dus fere dimidii 3tii longitudine.*

G. 6. PINNOTHERELIA, *Lucas.*[§]—Pedes 8 postici sat graciles, subæqui. Corpus suborbiculare.

2. HYMENICINÆ. Corpus sæpius parce rostratum, depressum. Articulus maxillipedis externi 2dus dimidio 3tii major.

G. 1. HYMENOSOMA, *Leach.*—Carapax suborbiculatus, angulo extra-orbitali acuto. Frons angustissimus, non lobatus, oculis valde approximatis.

G. 2. HALICARCINUS, *White.*[||]—Carapax suborbiculatus, angulo extra-orbitali nullo. Frons tridentatus, antennis internis inter dentes se porrigentibus, oculis remotioribus. Articulus maxillipedis externi 3tius 2do paulo major.

G. 3. HYMENICUS, *Dana.*[¶]—Carapax suborbiculatus, angulo extra-orbitali nullo. Frons productus, simplex aut lobatus, antennarum basin celans, oculis remotioribus. Articulus maxillipedis externi 3tius 2do paulo major. Pedes gracillimi.

G. 4. ELAMENA, *Edw.*—Carapax subtriangulatus, paulo oblongus, paulo rostratus, fronte antennas internas celante. Articulus maxillipedis externi 3tius 2do minor.

FAM. VI. MYCTIRIDÆ.

Corpus obesum. Carapax fronte perangustus, orbitis carens; antennæ internæ longitudinales.

Genus MYCTIRIS, *Latr.*

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[*] White, Ann. Mag. Nat. Hist., xviii, 178, and Voy. of Samarang, p. 63. The genus *Fabia* forms a transition from Pinnothera to Xenophthalmus; it includes the *P. chilensis.*

[†] Ann. Mag. Nat. Hist., xviii, 176.

[‡] Ann. Mag. Nat. Hist., xviii, 177. Includes Say's *Pinn. cylindricum,* Jour. Ac. Nat. Sci., Philad., i, 452.

[§] Crust. of D'Orbigny's S. Amer., p. 24. The genus forms a transition to the Gecarcinidæ.

[||] Ann. Mag. Nat. Hist., xviii, 178.

[¶] The genus *Hymenosoma* belongs to the Cape of Good Hope, *Halicarcinus* to the extremity of S. America, and *Hymenicus* to New Zealand.

2. *Note on the genera Hexapus and Arges of De Haan;* by J. D. Dana.—The genus *Hexapus* of De Haan, in his first publication of its characters, (in Decade I. and II. of the Fauna Japonica, pp. 5 and 35,) is arranged near Pinnothera, which it resembles in its short obese form and small size. But in his last Decade, published in 1849, which contains his final remarks on classification, at p. xiv, the genus is referred to the vicinity of Pilumnus.—The outer maxillipeds are as in Pilumnus. The genus is peculiar in the 5th pair of legs being obsolete. The species is the *H. sexpes*, (Jap., p. 63 and pl. 11, f. 6, *Cancer sexpes* of Fabricius, Ent. Syst., Suppl., p. 344, f. 37.)

The genus *Arges* of De Haan, (Faun. Japon., p. 21,) includes only a fossil species. It is Cancroid in its outer maxillipeds and near Pilumnus and also Menippe. The abdomen in both sexes is 7-jointed; in the male oblong-trigonal, in the female ovate. The lateral margins of the carapax are parallel and entire, and the general form is much like that of *Cyclograpsus Audouinii* and the allied. Distance between the eyes one-fifth the breadth of the thorax.—Sp. *A. parallelus* (F. Jap., p. 52, and pl. 5, f. 4) from Japan.

XV

with the Author's resp

From the American Journal of Science and Arts, 2nd Series, Vol. XIII.—Jan., 1852.

ON THE

CLASSIFICATION

OF THE

CORYSTOIDEA, PAGURIDEA, ETC.

By JAMES D. DANA.

1. THE CORYSTOIDEA have their closest relations with the Cancroidea, and form a passage between this division of the Brachyura and the Hippidea. They are remote from the Oxystomata in the mouth and efferent branchial channels, the latter having these channels *medial* over the palate, and the former *lateral* like the Cancroids. In the projection of the outer maxillipeds over the epistome, the elongated and more or less pilose outer antennæ, and the partially free or less closely inflexed abdomen, the species exhibit their degradation below the Cancer type. The Platyonychidæ are the Cancroids which approximate most to the Corystoids, and they are placed with this group by De Haan. But they differ from the Corystoidea in the shorter and more naked outer antennæ; and we therefore incline rather to retain them with the Crancroidea, where they are arranged by Milne Edwards.

The degradation of the Cancroidea is also seen in another line leading through *Acanthocyclus* to *Corystoides*, Lucas, and *Bellia*, Edw.* The last two genera are somewhat Corystoid in habit: yet they pertain to a distinct group, inasmuch as they have the outer antennæ obsolete or nearly so, and the inner antennæ *without fossettes.* This last character belongs only to the lower Anomoura and the Macroura, and places these genera quite low in rank in a group we name BELLIDEA which belongs near if not among the Anomoura.

In attempting to arrange the Corystoidea into groups, we consider, as in other cases, the relations of the species to the higher Crustacea, and by the transitions observed, we are led to our subdivisions. *Trichocera* is Cancroid in habit, in the absence of a beak, in the nearly naked outer antennæ, and in having the outer maxillipeds fitted neatly to the epistome. *Thia* and *Kraussia* are also without a beak, like the Cancroids, but have the outer maxillipeds overlapping the epistome. The remaining genera have the front somewhat rostrate, the inner antennæ longitudinal, the maxillipeds produced over the epistome and the outer antennæ elongate and pilose and flexed at base towards the medial line. The form of the third joint of the outer maxillipeds varies from narrow oblong to transverse in closely related genera, and affords no basis for a family distinction.

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* In the synopsis of the Cancroidea in this Jour., vol. xii, p. 131, Corystoides was placed near Acanthocyclus, to which it has close relations; but from this and the other Cancroids, it is removed by the absence of all power of retraction in the inner antennæ.

The name *Bellia* has been recently duplicated in the science, in an article by Mr. C. Spence Bate, on a new genus of Amphipods near Lepidactylis, published in the Annals and Mag. Nat. Hist., [2], vii, 318, pl. 11, f. 8, 1851. The description of Milne Edwards's genus of this name is published in the Ann. des Sci. Nat. [3], ix, 1848, p. 192.

The following are the families thus deduced, with the genera of Corystoidea and their characteristics.

Fam. I. TRICHOCERIDÆ.

Carapax formâ Cancroideus, fronte non rostratus. Antennæ internæ longitudinales. Antennæ externæ breves, flagello parce piloso. Maxillipedes externi super epistoma non producti, sed margini areæ buccalis bene adaptati.

Gen. Trichocera, *DeHaan.*[*]—Frons dentatus. Articulus maxillipedis externi 3tius apice truncatus. Articulus antennarum externarum 1mus elongatus, hiatum orbitæ bene occupans.

Fam. II. THIIDÆ.

Carapax suborbicularis, non oblongus, fronte non rostratus. Antennæ internæ transversæ vel obliquæ. Antennæ externæ breves, flagello parce piloso. Maxillipedes externi super epistoma producti.

Gen. 1. Thia, *Leach.*—Frons integer, arcuatus. Antennæ internæ transversæ. Pedes nulli natatorii. Articulus maxillipedis externi 3tius vix oblongus.

Gen. 2. Kraussia, *Dana.*[†] Carapax paulo transversus, margine postero-laterali brevi, fronte denticulato, medio emarginato. Antennæ internæ obliquæ. Pedes 8 postici natatorii, tarso falciformi. Articulus maxillipedis externi 3tius vix oblongus.

Fam. III. CORYSTIDÆ.

Carapax sive suborbicularis sive multum angustus, fronte plus minusve rostrato. Maxillipedes externi super epistoma producti.

1. *Pedes nulli natatorii.*

G. 1. Telmessus, *White.*[‡]—Carapax parce transversus, pone medium latior, fronte paulo producto et medio emarginato. Articulus antennarum externarum 1mus elongatus, processu elongato hiatum orbitæ bene occupans. Articulus maxillipedis externi 3tius parce oblongus apice triangulatus, articulum 4tum prope apicem gerens.

G. 2. Atelecyclus, *Leach.*[§]—Carapax fere orbicularis, lateraliter arcuatus, fronte paulo producto. Articulus antennarum externarum 1mus elongatus hiatum bene occupans. Articulus maxillipedis externi 3tius oblongus, apice oblique truncatus, in marginis interni emarginatione articulum 4tum gerens.

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[*] Faun. Japon. (1833), p. 16.

[†] Ad species complectendum *Xantho integrum* Haanii, (Faun. Japon. 66, tab. 18, f. 6) et *Platyonychum rugulosum* Kraussii ("Südaf. Crust." 26, tab. 1, f. 5), Thiæ affines et Xantho remotas, genus "Kraussia" institutum est. Platyonycho discrepat margine postero-laterali breviore quam antero-lateralis, carapace paulo transverso, fronte bilobato et denticulato, flagello antennarum internarum subpiloso. An *Trichocera porcellana* (A. White, "Voy. Samarang," p. 59) a Kraussii specie differt?

[‡] A. White, "Ann. Mag. Nat. Hist.," xvii, 497, 1846; Voy. Samarang, 14, tab. 3. *Atelecyclo*, habitu, antennis aliisque, Kraussia affinis: ejus affinitas Maioideis, ab Adamsio White edita, justa non videtur.

[§] *Chlorodius* Haanii, Faun. Japon., 13.

G. 3. PELTARION, *Hombron et Jacquinot.**—Carapax suborbicularis, ante medium latior, fronte triangulatè rostrato. Articulus antennæ externæ 1mus perbrevis, 2do parce crassior. Articulus maxillipedis externi 3tius non oblongus, apice truncatus. Articulus pedum 8 posticorum 5tus 4to vix brevior.

G. 4. PSEUDOCORYSTES, *Edwards.*—Carapax suborbicularis, parce oblongus, triangulatè rostratus. Articulus maxillipedis externi 3tius vix oblongus. Articulus pedum 8 posticorum 5tus 4to duplo brevior.

G. 5. GOMEZA, *Gray.*†—Carapax oblongus, fere ellipticus, triangulatè rostratus. Oculi parvi vel mediocres. Articulus maxillipedis externi 3tius vix oblongus vel transversus, apice truncatus. Articuli pedum 8 posticorum 5tus et 4tus fere æqui.

G. 6. OEIDIA, *DeHaan* (partim).‡—Carapax oblongus, antice non angustans, fronte breviter rostrato. Oculi permagni. Articulus maxillipedis externi 3tius latus, oblongus, 2do paulo brevior. Articuli pedum 8 posticorum 5tus et 4tus fere æqui.

G. 7. CORYSTES, *Latreille.*—Carapax oblongus, rostratus. Oculi mediocres. Articulus maxillipedis externi 3tius angustè oblongus 2do vix brevior.

2. *Pedes postici natatorii.*

G. 8. DICERA, *DeHaan.*§—Carapax oblongus, rostro late triangulato. Pedes postici natatorii, tarso falciformi. Articulus maxillipedis externi 3tius angustè oblongus, 2do parce brevior.

2. *Conspectus Crustaceorum, &c.—Conspectus of the Crustacea of the Exploring Expedition under Capt. Wilkes, U.S.N.;* by JAMES D. DANA.—PAGURIDEA, (Proc. Acad. Nat. Sci., Philad., 1851. p. 267.)—This paper contains a distribution of the Paguridea into genera, and also a description of new species. The natural groups have been partly indicated by Milne Edwards in his work on Crustacea, and more lately in the Annales des Sciences Naturelles for 1848, p. 59. There are, however, in his arrangement, discrepancies between the characters of the species and those laid down for his subdivisions which we find it difficult to explain. Such are, the placing of *Pagurus tibicen* and some related species with his "*Æquimanes*," when the left hand is very much the larger, and the *guttatus* and *granulatus* with the "*Senestres*," although the hands are nearly equal in the former, and the right is the larger in the latter. Still his sections are in the main natural groups, and some of them have more important points of distinction than this distinguished author has mentioned.

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* *Hombron et Jacquinot*, "Voy. au pole Sud," tab. 8, f. 1.

† *Oeidia* Haanii (partim), Faun. Japon. 15. Species Oeidiæ typica (*O. 20-spinosa* denominata) *Gomeza* vera est.

‡ Faun. Japon. 15. Species *Oeidia distincta* Haanii, typus est generis Oeidiæ accepti. Genus idem est *Jonas*, (Hombron et Jacquinot, "Voy. au pole Sud.," tab. 8, f. 4–8.) Species *J. macrophthalmus*, oculis grandibus formâ characteribusque aliis, *Oeidiæ distinctæ* ferme similis.

§ Faun. Japon. 14, (1833). *Nautilocorystes*, Edwardsii, Crust. ii, 149 (1837).

The *Pagurus Bernhardus* is the type of one group, the species of which live mostly in the colder oceans. This genus is called BERNHARDUS, and the common species naturally bears Leach's specific name, *Bernhardus streblonyx.* The 2d genus is called DIOGENES; *Pagurus miles* is the type. The 3d, PAGURISTES, having for its type, *Pagurus gonagrus* or *P. pilosus.* The preceding have the fingers acuminated, while in the following genera they are spoon-excavate at tip. The 4th genus is PAGURUS, a large group including *P. punctulatus*, having corneous tips to the fingers, and no beak; the 5th, CALCINUS, with *P. tibicen* as the type, with calcareous tips and a short beak; [6th, ANICULUS, equal handed and beaked, and with corneous tips to the fingers like the following, but having a vertical movement in the fingers, as in *Pag. aniculus;* 7th, CLIBANARIUS, equal-handed and having a lateral or horizontal movement in the fingers, as in *Pagurus clibanarius.*[*] The last two genera are here for the first time published, not being included in the paper in the Academy's Proceedings.—D.]

The following is a synopsis of the genera:

FAM. I. PAGURIDÆ.

Antennæ internæ mediocres, articulo 1mo brevissimo. Maxillipedis externi palpus flagello multiarticulato instructus.—Species aquaticæ vel littorinæ.

1. PAGURINÆ.—Abdomen asymmetricum.

1. *Digiti acuminati. Flagellum antennarum internarum sæpe plus minusve pilosum.*

Gen. 1. PAGURISTES, (*D.*)—Pedes 4ti non subcheliformes, tarso terminali. 2–4 appendicibus pone pedum posticorum bases instructus. Basis antennarum internarum paulo longior, apice articuli 2di extremitatem oculorum fere attingente.

Gen. 2. DIOGENES, (*D.*)—Pedes 4ti subcheliformes. Pedes 1mi inæqui, sinister major. Annulum ophthalmicum rostriferum. Appendicibus pone pedum posticorum bases carens.

Gen. 3. BERNHARDUS, (*D.*)—Pedes 4ti subcheliformes. Pedes 1mi interdum subæquales, sæpius dexter major. Annulum ophthalmicum non rostriferum. Appendicibus articulatis pone pedum posticorum bases carens.

2. *Digiti instar cochlearis excavati. Flagellum antennarum internarum nudum vel nudiusculum.*

Gen. 4. PAGURUS.—Manus anticæ sæpius compressæ, interdum subæquæ, sæpius sinistrâ majore; digitis apice corneis, in plano verticali claudentibus. Frons medio non rostratus sed truncatus.

Gen. 5. CALCINUS, *D.*—Manus anticæ compressæ, inæquæ, sinistrâ majore, digitis apice calcareis, in plano verticali claudentibus. Frons medio breviter rostratus.

Gen. 6. ANICULUS, *D.*—Manus anticæ subæquæ, digitis apice corneis, in plano verticali claudentibus. Frons medio breviter rostratus.

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[*] The Pagurus aniculus may hereafter be named *Aniculus typicus* and the P. clibanarius, *Clibanarius vulgaris.*—D.

Gen. 7. Clibanarius, *D.*—Manus anticæ plus minusve depressæ, subæquæ, digitis apice corneis, in plano horizontali claudentibus. Frons medio breviter rostratus.

II. CANCELLINÆ.—Abdomen symmetricum.

Gen. Cancellus, *Edwards.*

Fam. II. CENOBITIDÆ.

Antennæ internæ multo elongatæ, articulo 1mo oculis sæpius longiore, valde deflexo. Maxillipedis externi palpus flagello non instructus.—Species subterrestriales.

Gen. 1. Cenobita, *Edw.*—Corpus angustum, carapace elongato, fronte non rostrato. Abdomen in cochleam retortum, superficie plerumque carnosum.

Gen. 2. Birgus, *Leach.*—Corpus latum, carapace parce oblongo postice latissimo, fronte triangulato. Abdomen directum, laminis crustaceis dorso plerumque tectum.

The following are the names of the species described in this paper: Bernhardus Novi-Zealandiæ, B. armatus, B. hirsutiusculus, B. pubescens, B. tenuimanus; Paguristes longirostris, P. hirtus; Pagurus fabimanus, P. scabrimanus; together with the following referred to Pagurus, but which pertain to the new division Clibanarius, C. æquabilis, C. zebra, C. humilis, C. globoso-manus. The last may be the P. corallinus of Edwards. Also Cenobita carnescens and C. brunnea. D.

3. *On the Genus Orthostoma;* by James D. Dana.—The genus Orthostoma was referred by its describer, Dr. Randall, (J. Acad. Nat. Sci., Philad., viii, 121, pl. 5, 1840,) to the family Gecarcinidæ. In its convex or obese form, it approaches that group. Yet the dentate antero-lateral margin, and thin dentate front led to his remarking that "the species has at first sight much resemblance to the Cancers." Upon examining the specimens, recently, in the collections of the Academy at Philadelphia, I find that in their essential characters as well as the texture of the carapax, the species is related to the Telphusidæ. The male verges are situated as in Telphusa, and not as in the Grapsoidea; and in general habit, the described species is near Potamia and Trichodactylus. It has the 2d joint of the outer maxillipeds oblong (but little shorter than the second), with the summit oblique, and the 4th joint articulated with it near the outer apex. The male abdomen is very broad triangular, and 5-jointed.

The known genera of Telphusidæ, are, then, as follows:—

G. 1. Telphusa, *Latr.*—Articulus maxillipedis externi 3tius subquadratus, 2dus multo brevior, 4tum angulo apicali interno gerens.

G. 2. Valdivia, *White.*—Articulus maxillipedis externi 3tius oblongus, 2dus transversus. [Carapax margine antero-laterali 4-dentatus.] Pedes longi.

G. 3. Potamia, *Latr.*—Articulus maxillipedis externi 3tius subquadratus, apice subtriangulatus anguloque apicali 4tum gerens.

G. 4. TRICHODACTYLUS, *Latr.*—Carapax marginibus subinteger. Articulus maxillipedis externi 2dus oblongus, 3tius vix oblongus, subtriangulatus, margine terminali valde obliquo anguloque externo 4tum gerens, 2ndo multo brevior.

G. 5. ORTHOSTOMA, *Randall.*—Carapax margine antero-laterali dentatus. Articulus maxillipedis externi 2dus oblongus, 3tius oblongus, 2do paulo brevior, apice obliquus, prope angulum exteriorem articulum 4tum gerens.

4. *Genus Heterograpsus of Lucas.*—The genus Heterograpsus, described in the recent work on the Exploration of Algiers, and figured on plate 2 of Crustacea, f. 4, has the outer maxillipeds and most other characters of *Pseudograpsus*, Edw.,* but differs from that genus in having the sides nearly straight and convergent backward as in most Sesarmæ, instead of arcuate. In the species described, the *H. sexdentalus*, the antero-lateral margin is bi-emarginate. J. D. D.

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* See this Journal, xi, 278.

with the Author's
respects —

CRUSTACEA PAGURIDEA.

XVI.

Conspectus Crustaceorum quæ in Orbis Terrarum circumnavigatione, Carolo Wilkes e classe Reipublicæ Fœderatæ Duce, lexit et descripsit J. D. DANA.

[Ex Academiæ Scientiarum Naturalium Philadelphiensis Nuntiis, Anno 1851, Vol. v. p. 267.]

PAGURIDEA.

The Paguridea include two groups, distinguished by peculiarities in the form of the inner antenna, outer maxillipeds, and some other characteristics;—the one *aquatic* in habit, and the other *subterrestrial*. They are as follows:

Fam. I. PAGURIDÆ.—Inner antennæ short, first joint very short. Palpus of maxillipeds with a multiarticulate flagellum. Aquatic or littoral.

Fam. II. CENOBITIDÆ.—Inner antennæ very long, the first joint of the base as long as the eyes or longer, and bent obliquely downward. Palpus of outer maxillipeds without a flagellum. Subterrestrial.

The Paguridæ have hitherto been divided into but two genera; *Pagurus*, with unsymmetrical abdomen, and *Cancellus*, (Edw.) with symmetrical. There are, however, important characteristics, which point to a division into other groups. These have been partly indicated by Milne Edwards, in the subdivisions of the genus Pagurus, laid down in his work on Crustacea,[*] and more distinctly in the Annales des Sciences Naturelles, for July, 1848.[†] In the latter article there are discrepancies in certain instances, between the character of the species and those mentioned for the subdivisions, which we find it difficult to reconcile; such as the placing of *P. tibicen*, and some related species, with his "Æquimanes," when, in fact, the left hand is very much larger than the right, and the *guttatus* and *granulatus* with the "Senestres," although, in the former, the hands are nearly equal, as in many of the "Æquimanes," and in the latter the right hand (as is observed in his "Crustacés") is actually the larger. Yet his sections are, in the main, natural groups, and some of them have more important points of distinction than he has mentioned.

The *Pagurus Bernhardus* is the type of one of these groups. Besides being "dextres," they are peculiar in having *acuminate fingers*, with the tips of those of the larger hand *calcareous*; and although the feet of the 4th pair are subcheliform, like most other Paguridæ, the scabrous area or rasp of the hand is confined nearly to the posterior edge. Moreover, the species belong mainly to colder waters, while the ordinary Paguri abound especially in the tropics. All the Paguri of England (or with but one uncertain exception, recently pointed out,) are of the *Bernhardus* type; those of the Northwest coast of America are the same. We naturally, therefore, distinguish this group as a genus under the name of BERNHARDUS. [The species *P. Bernhardus* may be hereafter named the *Bernhardus* ~~*typicus*~~.] • Tubelong

Among the remaining Paguri, the larger part have the feet of the 4th pair subcheliform, the penult joint being broad, and the last (or tarsus) forming a finger placed on its anterior margin. Yet, a few have these feet vergiform, the tarsus being terminal; and these species are also peculiar, in having two pairs of slender appendages at the base of the abdomen, on account of which they are called the "Pagures appendicules" by Edwards. Besides, they have the flagellum of the outer antennæ more or less hairy, and often long ciliate along the under side, and, also, the inner antennæ have a longer base than usual, the 2d basal joint reaching nearly, or quite, to the extremity of the eyes. These species make a well characterized group, which we name *Paguristes*.

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[*] Crustacés, ii, 213, and Annales des Sci. Nat. [2], vi, 257.

[†] Ann. des Sci. Nat. [3], x, 59.

Another small group is singular in having a rostriform appendage to the ophthalmic joint; they are the "Pagures armés" of Edwards, including *P. miles* and *P. custos*, the former the *Cancer Diogenes* of Herbst. Besides this distinction, the fingers of the hands are acuminated, as in the Bernhardi, and have calcareous tips, although the species are not right-handed; also, the 2d joint of the outer antennæ is complete on the upper side, and there is no moveable appendage or acicle (a name we give to the so-called palpus, in allusion to its form). With these distinctions, the group is entitled to the rank of a genus, which may be named *Diogenes*.

The remaining species of Paguri are similar, in having the fingers of the hands more or less spoon-shaped;—with no rostriform appendage to the ophthalmic segment between the eyes;—the outer antennæ bearing a moveable acicle;—the flagellum of the outer antennæ naked; the 2d joint of the base of the inner antennæ not reaching to extremity of eyes;—the feet of the 4th pair subcheliform with the scabrous area on the hand, lateral and broad.

The great majority of these have the tips of all the fingers corneous. But a few have these tips in the larger hand calcareous, besides being peculiarly smooth and neat in the appearance of the limbs, and naked, or nearly so, with the shell more calcareous than usual. They have the left hand much the larger; yet unlike those species with *corneous* tips to the fingers that are strongly left-handed, the front margin has a small salient point at middle. Of the species with calcareous tips to the fingers, I make the genus *Calcinus*. This genus includes the old species *P. tibicen*, *Gaimardii*, *elegans*, &c.

The remaining species, still the larger part of the whole family, constitute the genus Pagurus. The following is a synopsis of the subdivisions proposed.

FAM. I. PAGURIDÆ.

Antennæ internæ mediocres, articulo primo brevissimo. Maxillipedis palpus externi flagello multiarticulato instructus. Species aquaticæ vel littorales.

Subfam. I. Pagurinæ.—Abdomen asymmetricum.

I. Pedes 4ti subcheliformes. Abdomen ad basin duobus paribus appendicium infra non instructum. Antennarum externarum flagellum nudum vel nudiusculum.

1. *Annulum ophthalmicum non rostriferum. Antennæ internæ aciculo mobili instructæ.*

Gen. 1. Bernhardus, D.—Pedes antici depressi; digiti acuminati; manus dextra major, apicibus digitorum calcarea. Macula scabra manus 4tæ submarginalis, linearis.

Gen. 2. Pagurus, *Fabr.*—Manus anticæ sive depressæ sive compressæ; digiti plus minusve instar cochlearis excavati, apicibus cornei; manus sinistra sæpius major. Macula scabra manus 4tæ lateralis, lata. Frons medio sive truncatus sive acutus.

Gen. 2. Calcinus, D.—Manus compressæ, sinistra major, apicibus digitorum calcarea et instar cochlearis optime excavata. Frons medio acutus. Pedes læves, nudi vel nudiusculi.

2. *Annulum ophthalmicum rostriferum. Antennæ externæ aciculo mobili non instructæ.*

Gen. 4. Diogenes, D.—Manus sinistra major. Digiti acuminati, apicibus calcarei.

II. Pedes 4ti vergiformes, tarso terminali. Abdomen ad basin 4 appendicibus infra instructum. Antennarum flagellum externarum plus minusve pilosum sæpe elongatè ciliatum.

Gen. 5. Paguristes, D.—Antennæ internæ elongatæ, apice articuli 2di extremitatem oculorum fere attingente.

Subfam. II. CANCELLINÆ.—Abdomen symmetricum. Gen. Cancellus, *Edw.*

FAM. II. CENOBITIDÆ.

Antennæ internæ basi longissimæ, articulo primo oculis sæpe longiore et valde deflexo. Maxillipedis palpus externi flagello non instructus. Species subterrestriales.

Gen. 1. Cenobita, *Edw.*—Corpus angustum, carapace parce elongato, fronte non rostrato. Abdomen in cochleam retortum, superficie plerumque carnosum.

Gen. 2. Birgus, *Leach.*—Corpus latum, carapace parce oblongo, postice latissimo, fronte triangulato. Abdomen directum, inflexum, laminis crustaceis quoad dorsum plerumque tectum.

Specierum Paguridearum adhuc ineditarum Descriptiones.

GENUS BERNHARDUS.

Bernhardus Novi-Zealandiæ.—Oculorum pedunculi margine carapacis antico vix breviores, basi antennarum externarum longiores, aciculo hirsuto multo longiores; cornea non obliqua, perbrevis; squama basalis paulo angusta, apice inciso-denticulata. Pedes antici valde inæqui, fere nudi; carpo versus apicem paulo pubescens, granulato-spinuloso; manu grandi, oblongâ, parce longiore non latiore quam carpus, superficie externâ sex-seriatim tuberculatâ (marginibus inclusis) inter has series fere lævi, digito mobili carinato, crenulato, et superficie uniseriatim tuberculato, etiam tuberculis minoribus instructo. Pedes 4 sequentes marginibus dense hirsuti, vix spinulosi.

Long. 1½—2″. *Hab.* in portu " Bay of Islands " Novi-Zelandiæ.

Bernhardus tenuimanus.—Frons medio subacutus. Carapax nudus. Oculorum pedunculi breves, basi antennarum externarum paulo breviores, aciculo subulato subnudo vix breviores; cornea non obliqua, brevis; squama basalis angusta, acuta. Pedes toti nudi, antici valde inæqui, granulati, granulis vix seriatis, carpi margine superiore denticulato, manu grandi tenuissimè compressâ, parce oblonga, multo latiore quam carpus, margine superiore tenuiter cristato et denticulato, inferiore tenui; manu minore carpoque angustissimè oblongis. Pedes 4 sequentes lateraliter læves, margine superno subspinulosi.

Long. 1—1¼″. *Hab.* in freto " Puget " Oregonensi.

Bernhardus armatus.—Carapax subnudus. Oculorum pedunculi margine carapacis antico breviores, sive basi sive aciculo subulato subnudo antennarum externarum multo breviores; cornea obliqua, dimidii pedunculi longitudine; squama basalis subovata, apiculata. Frons marginatus, medio paulo saliens, obtusus. Pedes toti fere nudi (junioribus exceptis pubescentioribus); antici valde inæqui, usque ad digitorum extremitatem tenuiter dense spinosi, spinis partim subseriatis, manu grandi latâ, oblongâ, multo longiore et parce latiore quam carpus; 4 sequentes supra spinulosi, tarsis infra paulo lateraliter uniseriatim spinulosis.

Long. 1¾″. *Hab.* in freto "Puget" Oregonensi.

Bernhardus hirsutiusculus.—Frons medio subacutus. Carapax brevis, sparsim pubescens, regione antico transverso. Oculorum pedunculi perbreves, basi antennarum externarum multo breviores, aciculo subnudo parce breviores; cornea vix obliqua; squama basalis ovata, non acuta. Pedes antici valde inæqui, angusti, carpo manuque pubescentes et granulato-scabri, margine superiore crassi, non spinulosi nec denticulati; manu oblongâ (duplo longiore quam latitudo) paulo breviore parce latiore quam carpus. Pedes 4 sequentes hirsutiusculi, non spinulosi, tarsis paulo compressis, infra subtiliter spinulosis.

Long. 1¼″. *Hab.* in freto "Puget" Oregonensi.

Bernhardus pubescens.—*B. hirsutiusculo* affinis. Frons medio subacutus. Carapax longior, fere nudus, regione antico non transverso. Oculorum pedunculi longi, margine carapacis antico non breviores, basi antennarum externarum parce longiores, aciculo multo longiores; cornea non obliqua; squama basalis subovata, apice rotundata. Pedes antici valde inæqui, angusti, carpo manuque pubescentes, scabriculi, non sparsim granulosi, carpo ad marginem superiorem minute spinuloso manu oblongâ (duplo longiore quam latitudo) paulo breviore parce latiore quam carpus. Pedes 4 sequentes pubescentes, non spinulosi.

Long. 1″. Hab. ? Conchæ quas habitant oris Americæ septentrionalis invenientur.

GENUS PAGURUS.

1. *Frons medio truncatus. Squama oculorum basalis lata.*

Pagurus fabimanus.—Frons medio fere rectus. Carapax plerumque nudus regione antico parce transverso. Oculi longiusculi, basi antennarum longiores; squama basalis lata, inverso-triangulata. Pedes antici valde inæqui, manu majore oblongâ, marginibus fere parallelis et subacutis, superiore spinuloso, inferiore crenulato aut subintegro, superficie externâ bene convexâ, tomentosâ, scabriculâ, digito mobili superne fere ad apicem minute spinuloso. Pedes 4 sequentes leviter hirsuti, tarsis prælongis, tarso pedis sinistri tertii subtriquetro, superficie hujus articuli præcedentisque externâ aut planâ aut subconcavâ, tomentosâ, margine superiore non spinuloso.

Long. 1½″. *Hab.* ad oras insulæ "Mindanao" Indiæ orientalis.

Pagurus scabrimanus.—*P. fabimano* fermè affinis, formâ carapacis, manus squamæque oculorum basalis similis. Oculi parce breviores, basi antennarum externarum longiores, internarum non longiores. Manus major extus non tomentosa, nudiuscula, scabricula, supra spinulosa,infra denticulata aut crenulata, digito mobili supra vix spinuloso, carpo supra extusque prope apicem spinuloso. Pedes

4 sequentes leviter hirsuti, tarsis prælongis, tarso pedis sinistri 3tii non subtriquetro, superficie externâ nec planâ, nec tomentosâ, margine superiore minute spinuloso.

Long. 1—1¼″. *Hab.* ad oras insulæ "Mindanao."

2. *Frons medio subacutus. Squama oculorum basalis sæpius angusta.*

Pagurus æquabilis.—*P. lineato* ferme affinis, manibus æquis, hirsutis, breviter spinulosis, formâ frontis oculique simili. Pedes 2di 3tiique parce hirsutiusculi, superficie externâ nudâ, articulis latioribus, fere lævibus, punctulatis, tarsis brevibus; pedibus paris 3tii inæquis, articulo sinistro penultimo extus planiusculo et superne subacuto. Pedes colore non lineati.

Long. ¾″. Hab. ad insulas "Madeira," et "St. Jago" archipelagi "Cape Verde."

Pagurus zebra.—*P. æquabili* fronte manibus hirsutis subæquis depressis oculisque similis. Oculi margine carapacis antico non breviores, basin antennarum externarum longitudine æquantes, aciculo duplo longiores. Pedes antici parvi, dextro paulo majore, manu duplo longiore quam latitudo, crasse granulatâ aut minute tuberculatâ, hirsutâ, carpo non depresso, dextro parce tuberculato. Pedes 2di 3tii leviter hirsuti, colore pauci-lineati, subtiliter sparsim granulati, tarsis brevibus, articulo penultimo pedis sinistri paris 3tii supra non spinuloso.

Long. ¾″. Hab ad insulas "Sandwich."

Pagurus globoso-manus.—P. *æquabili* manibus subæquis, digitis, formâ frontis affinis. Frons medio latius acutus. Oculi margine antico carapacis parce longiores, basi antennarum externarum vix longiores. Pedes antici breves, manu globulosâ, non duplo longiore quam latitudo, supra infraque minute tuberculato-spinosâ, breviter hirsutâ. Pedes sequentes fere nudi, articulo 3tio subtiliter verrucoso, penultimo pedis sinistri paris 3tii extus plano et hirsuto, paris 2di nudo, paucis spinulis minutis armato. Pedes colore non lineati.

Long. 1¼″. *Hab.* ad insulas "Viti."

Pagurus humilis.—*P. æquabili* fronte manibus parvis subæquis affinis. Oculi breviores, crassiusculi, fronte non longiores; squamâ basali triangulatâ. Pedes primi parvi, manu dextrâ parce majore, pubescente, oblongâ, paulo compressâ, margine superno rotundato. Pedes 4 sequentes crassiusculi, subteretes, sparsim pubescentes, tarso tenui, terete, breviore quam articulus penultimus. Pedes colore non lineati.

Long. 1″. *Hab.* ad insulas "Viti" et "Tongatabu."

GENUS PAGURISTES.

Paguristes longirostris.—Rostrum anguste elongatum, acutum, integrum, carapacis regio antica subcordata, fere nuda. Oculi graciles, margine carapacis antico longiores, vel basi vel aciculo antennarum externarum vel basi internarum multo longiores; squamâ basali medio acutâ. Flagellum antennarum externarum nudiusculum. Pedes antici æqui, manu carpoque depressis, latis, bene areolatis, non scabriculis, manu infra partim villosâ. Pedes 4 sequentes intus areolati supra hirsuti, extus fere læves et nudi.

Long. 1¼″. *Hab.* in mari Indiæ orientalis.

Paguristes hirtus.—Rostrum brevissimum. Carapax plerumque hirtus. Oculi graciles margine carapacis antico non breviores, basi vel aciculo antennarum externarum multo longiores, basi internarum breviores, squamâ basali valde elongatâ, angustâ, margine externo arcuato et tenuiter bene denticulato. Flagellum antennarum externarum infra elongate ciliatum. Pedes 2di 3tii hirti crassiusculi.

Long. 2″. *Hab.* in mari Sinensi.

GENUS CENOBITA.

Cenobita carnescens.—Regio carapacis antica plana, scabricula, lateribus quoque plana. Oculi fronte longiores, plus duplo longiores quam altitudo, valde compressi, squamâ basali triangulatâ, acutâ. Pedes antici inæqui, sinistro majore, superficiem granuloso, carpo paulo breviore quam manus, brachio apicem oblique plano-truncato. Pedes quatuor sequentes fere nudi, parce pubescentes, articulo ultimo scabriculo.

Long. 1¼—1½″. *Hab.* in archipelago "Paumotu."

Cenobita brunnea.—Regio carapacis convexa, nuda. Oculi fronte paulo breviores. Pedes antici validi, paulo inæqui, manu carpoque hirsutis, manu spinulis minutis sparsis scabriculâ, brachio apicem rotundato. Pedes 4 sequentes hirsuti, articulo ultimo subterete, longiore quam penultimus.

Long. 3″. *Hab.* ad insulam "Upolu" Samoensem. Abdomen nuce myristico sæpe tectum.

XVII

CONSPECTUS CRUSTACEORUM, ETC.

(Conventui exhibita die 4 Maii, 1847.)

Pars I.—CRUSTACEA COPEPODA (CYCLOPACEA*).

Familia I. CYCLOPIDÆ.

Oculi duo simplices tantum. *Palpi* mandibulorum maxillarumque breves aut obsoleti. *Sacculi ovigeri* duo.

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* Cyclopaceorum organa sunt:—

Cephalo-thorax 4–7-articulatus. *Abdomen* 1–6-articulatum, carapace non tectum.

Frons sæpissimè rostrata, rostro aut simplice, aut furcato, aut transversim emarginato, aut appendicibus instructo.

Oculi duo simplices, pigmento aut connati aut disjuncti; quoque quibusdam, oculi duo coaliti sub capite insistentes; aliis, oculi lenticulis duobus grandibus, uno oblato, uno prolato, constructi.

Antennæ anticæ 4–28-articulatæ, aut simplices, aut appendiculatæ; *posticæ*, 2–5-articulatæ et sæpe ramum ferentes, aliis apice setigeræ, aliis subcheliformes.

Mandibulæ apice dentatæ, sæpius palpigeræ.

Maxillæ duæ setosæ; sæpe palpigeræ, palpo sive parvulo et vix discernendo, sive setas diffusas ferente.

Maxillipedes duo, aliis parvi et parcius setigeri, aliis crassiores et valde setigeri, setis spinulosis.

Pedes antici duo simplices, aut obsolescentes, aut elongati, aliis setigeri setis non spinulosis, aliis subcheliformes.

Pedes biremes decem; octo anteriores sæpius natatorii, sed duo antici interdum subprehensiles; duo posteriores plurimum obsoleti aut parvuli; in quibusdam masculinis pergrandes et uno ambove prehensiles.

Abdomini pertinentes ad basin sæpissimè *pedes spurii*, sive obsolescentes, sive oblongi et setis armati; ad extremum, styli caudales duo, unusquisque 4–6 setis plerumque plumosis instructus.

Ad segmentum cephalo-thoracis *septem*-articulati primum, antennæ quatuor pertinent; ad secundum, mandibula, maxillæ, et maxillipedes; ad tertium, pedes quatuor antici; (cephalo-thorace *quadri*-articulato, hæc tota ad segmentum anticum pertinent;) ad segmenta sequentia, singulatim, duo pedes biremes.

Genus I. CYCLOPS.

Antennæ maris anticæ subcheliformes aut articulo geniculante instructæ.

1. Cyclops Brasiliensis. — C. cephalo-thorace posticè obtuso, abdominem longitudine superante; antennis anticis in utroque sexu elongatis (cephalo-thorace longioribus), articulis primo secundoque majoribus et setis oblongis apice instructis, setis antennarum aliis brevibus; anntennis *maris* 7-articulatis, articulis tribus basalibus crassissimis, reliquis teretibus, *feminæ*, 14-articulatis, teretibus; stylis caudalibus oblongis, tres articulos abdominis ultimos simul sumtos fere æquantibus, setâ secundâ * fere abdominis longitudine, primâ dimidio breviore.

Hab. Rio Janeiro.

2. Cyclops curticaudus. — C. *feminæ* cephalo-thorace posticè obtuso, abdominem longitudine valde superante; antennis anticis dimidio cephalo-thorace valde longioribus, 13 – 14-articulatis, articulis brevibus, quinque basalibus non oblongis; setis antennarum † inæqualibus, *posterioribus* articulorum penultimi et præantepenultimi longioribus (quatuor articulos ultimos simul sumtos longitudine æquantibus), *anterioribus* perbrevibus; stylis caudalibus prælongis, dimidio abdomine vix brevioribus, setis curtis, secundâ tertiâque subæquis et stylo paulo longioribus.

Long. $\frac{1}{20}''$. — *Hab.* Valparaiso, Chile.

3. Cyclops pubescens. — C. cephalo-thorace pubescente, abdominem longitudine vix superante, posticè subacuto; antennis anticis *feminæ* dimidii cephalo-thoracis longitudine, 8 – 9-articulatis, setis totis brevibus; antennis *maris* brevioribus, tribus articulis basalibus curtis, quarto crassissimo subovato, dimidii antennæ longitudine, ultimo (forsan duplice) tenui brevique, digitiformi; stylis caudalibus abdomine quadruplo brevioribus, setâ secundâ abdomine longiore, primâ brevissimâ.

Long. $\frac{1}{24}''$. — *Hab.* Valparaiso, Chile.

4. Cyclops MacLeayi. — C. *feminæ* cephalo-thorace abdomine valde longiore; antennis anticis longis (cephalo-thoracem æquantibus),

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* Setarum caudalium interior est nobis *prima*, et sequentes ordine, *secunda*, *tertia*, et cet.

† Setæ antennarum plerumque valent ad species distinguendum, et præcipuè illæ articulorum ultimorum. Articulos 2, 3, aut 4, ultimum præcedentes, *subultimos* sæpe vocamus; et eorum setæ, *anteriores* et *posteriores*, scrutandæ et comparandæ.

ad basin paulo crassioribus, articulo secundo oblongo, 5 – 6 sequentes brevissimos simul sumtos longitudine fere æquante, 10 reliquis paulum oblongis, septimo longiore, setis articuli secundi et septimi parum elongatis, duorum subultimorum[*] totis brevibus, ultimi articulum longitudine vix superantibus; stylis caudalibus tenuibus, duos articulos abdominis longitudine æquantibus, setâ secundâ abdomine breviore, primâ fere styli longitudine.

Long. $\frac{1}{24}''$. — *Hab.* in vicin. Sydney, N. S. W.

5. Cyclops Vitiensis. — C. *feminæ* cephalo-thorace posticè fere obtuso, abdominem longitudine vix superante, nudo; antennis anticis longis, cephalo-thoracis longitudine, multi-articulatis, articulo primo crasso, oblongo, secundo dimidio minore, 6 sequentibus perbrevibus; setis antennarum inæqualibus, articulorum primi secundique paulo longioribus, ultimi et 3 subultimorum posterioribus subæqualibus, articulo suoque paulo longioribus, setis anterioribus subultimorum perbrevibus; stylis oblongis, vix duorum articulorum abdominis longitudine, setâ secundâ abdomine paulo longiore.

Long. $\frac{1}{24}''$. — *Hab.* in Vanua Lebu, ad Insulas Viti.

Familia II. — HARPACTIDÆ.

Oculi duo simplices tantum. *Palpi* mandibulorum maxillarumque parvuli, aut obsoleti, setis diffusis non instructi. *Sacculus ovigerus* unicus. *Antennæ posticæ* setis habitu digitorum apice instructæ.

Genus I. HARPACTICUS. *Milne Edwards.*

Frons subrostrata, appendicibus nullis. *Antennæ anticæ maris* subcheliformes, aut articulo geniculante instructæ; *feminæ* basi 2 – 5 articulatâ et quasi curto flagello sæpius minutè 5-articulato compositæ, apice basis appendicem brevem ferentes. *Cephalo-thorax* 4-articulatus. *Pedes antici* subcheliformes mediocres.

Syn. — Arpacticus, et Cyclopsina partim (C. castor, excluso), *M. Edwards.* — Nauplius, *Philippi.* — Canthocarpus, *Westwood.* — Doris, *Koch.* — Canthocarpus et Arpacticus, non Cyclopsina, *Baird.*

1. Harpacticus virescens. — H. cephalo-thorace ovato, anticè rotundato et breviter rostrato, segmentis posticè non acutis, abdomine paululum subito angustiore et posticè sensim decrescente, 5-articulato; antennis anticis brevibus, dimidii cephalo-thoracis longitudine, 9-articulatis, articulis basalibus quatuor, crassiusculis, secundo maximo, setis

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[*] Vide, ante, p. 4 (150), notam †.

perbrevibus; pedibus anticis parvis, digito dimidii articuli secundi longitudine; stylis caudalibus brevissimis, paulum divaricatis, setâ secundâ corporis longitudine, primâ tertiâque subæquis abdomine valde brevioribus.

Long. $\frac{1}{20}''$. — *Hab.* Madeira, in litora insulæ.

2. Harpacticus concinnus. — H. *feminæ* cephalo-thorace longè ovato, segmentis posticè acutis; abdomine subito paulum angustiore, lato, lateribus bene recto, 6-articulato, parce decrescente, articulo primo brevissimo; antennis anticis brevibus, 9-articulatis, articulis basalibus quatuor, attenuatis, setis brevibus, apice paulum longis (flagellum longitudine æquantibus); pedibus anticis parvis, articulo secundo infra obtuso-angulato et digitum longitudine duplo superante; stylis caudalibus brevissimis, parum divaricatis, setâ secundâ corpore paulum breviore, tertiâ fere dimidio minore, reliquis brevissimis.

Long. $\frac{1}{20}''$. — *Hab.* in mari Pacifico prope Valparaiso.

3. Harpacticus sacer. — H. cephalo-thorace ovato, anticè subdeltoideo, segmentis posticè obtuso, dimidio longitudine latiore; abdomine subito multo angustiore, et breviore quam cephalo-thorax, 6-articulato, articulo primo brevi; antennis anticis brevibus, *feminæ* 9-articulatis, articulis basalibus quatuor, setis totis brevibus, *maris* articulo quinto (6?) crassissimo, subovato, margine anteriore subrecto, digito 2-articulato duabus setis minutis ad apicem instructo; pedibus anticis parvis digito tenui, largè dimidii articuli secundi longitudine; stylis caudalibus brevissimis, parum divaricatis, setâ secundâ corporis longitudine, tertiâ dimidio breviore, primâ perbrevi.

Long. $\frac{1}{16}''$. — *Hab.* in litora ad Valparaiso.

4. Harpacticus linearis. — H. corpore fere lineari, abdomine non angustiore, posticè parum attenuato; antennis anticis brevissimis, 7-articulatis, articulis basalibus duobus crassissimis, primo majore, secundo perbrevi, setis totis brevibus; stylis caudæ styliformibus, articulo abdominis ultimo longioribus, parum divaricatis, setâ secundâ longitudine fere dimidii corporis.

Long. $\frac{1}{20}''$. — *Hab.* in mari, ad Insulas Viti.

5. Harpacticus roseus. — H. corpore fere lineari, abdomine non angustiore, antennis perbrevibus et tenuissimis, basi non crassioribus, setis totis brevibus; stylis caudalibus brevibus, non divaricatis, setâ secundâ corpore longiore, spinulosâ.

Long. $\frac{1}{30}''$. — *Hab.* in mari Sulu.

6. Harpacticus acutifrons. — H. *maris* cephalo-thorace angustè elliptico, anticè acuto, posticè obtuso; abdomine subito angustiore, 6-articulato, posticè valde attenuato, articulo ultimo angustissimo; antennis anticis brevibus, 3 articulis basalibus non oblongis, tertio minimo, quarto crassissimo et cylindrico prope dimidii antennæ longitudine, quinto (forsan duplice), digitiformi, parvulo; antennis juxta basin et ad apicem breviter setigeris; stylis caudalibus minutis non divaricatis, setâ dimidio corporis parum longiore, strictè appressâ, nudâ.

Long. $\frac{1}{24}''$. — *Hab.* in mari prope Tierra del Fuego.

Genus II. CLYTEMNESTRA. (*Dana.*)

Frons subrostrata, appendicibus nullis. *Antennæ anticæ* flexiles; *maris*, non subcheliformes. *Pedes antici* permagni, subcheliformes.

Obs. Non *Arpacticus* Bairdii: *Cyclops chelifer* Arpacticis pertinet. Magnitudo pedium anticorum character genericum non bene validum, nisi pergrandes, quoque pro antennis geniculatis in coitu usitati sunt; ideoque est antennæ *maris* Clytemnestræ non subcheliformes.

Clytemnestra scutellata. — C. rostro subacuto; cephalo-thoracis segmento antico lato, posticè utrinque dilatato, tribus segmentis sequentibus subito angustioribus margine posteriore valde arcuatis et lateribus posticè productis et subacutis; abdomine 6-articulato, articulis subæquis, decrescentibus; antennis anticis elongatis 8 (9 ?)-articulatis, articulo quinto (sexto ?) arcuato, sequente oblongo et apice cum appendice instructo (?), reliquis tribus oblongis; setis longis divaricatis, duabus apicalibus fere antennæ longitudine; pedibus anticis pergrandibus, articulo secundo subclavato, digito tenui arcuato fere articuli secundi longitudine.

Long. $\frac{1}{24}''$. — *Hab.* in mari Pacifico, ad lat. 18° S., long. 124° W.; etiam at Insulas Kingsmills; in mari Sinense.

Genus III. SETELLA. (*Dana.*)

Corpus angustissimum fere lineare, anticè attenuatum et subacutum, et fronte appendices duas parvulas falciformes subtus gerens. *Antennæ anticæ* flexiles, appendice brevi instructæ, setis brevibus; *maris* non subcheliformes. *Pedes antici* mediocres aut parvi. *Pedes proximè sequentes* lateraliter porrecti, apice breviter setigeri. *Pedes abdominis* elongati et longè setigeri. *Setæ caudales* duæ longissimæ, (in speciebus scrutatis corpore valde longiores, spinulosæ, et strictè appressæ,) reliquæ brevissimæ. (Tubum cibarium sæpius læte rubrum.)

1. Setella tenuicornis. — S. antennis anticis fere corporis longitudine, articulis duobus basalibus valde crassioribus, secundo oblongo, reliquis teretibus gracillimis, tertio longissimo, quarto cum appendice instructo; ramis pedis biremis antici subæquis, longiore 3-articulato, articulis fere æquis; pedibus abdominis cum 5 – 6 setis elongatis subæquis instructis; setis caudalibus corpore fere duplo longioribus.

Long. $\frac{1}{15}''$ setis caudalibus exclusis. — *Hab.* in mari Atlantico meridionali.

2. Setella longicauda. — S. *maris* (?) antennis anticis basi non crassioribus, 7-aut 8-articulatis, articulo quarto paululum arcuato (postice convexo) et cum appendice instructo, tertio fere duplo longiore quam quartus aut secundus; ramo longiore pedis biremis antici 3-articulato, articulo primo valde brevissimo; pedum abdominis ramo exteriore brevissimè setigero, interiore duabus setis spinulosis instructo, apicem abdominis fere attingentibus; setis caudalibus corpore largè duplo longioribus.

Long. $\frac{1}{24}''$. — *Hab.* in mari Atlantico meridionali.

3. Setella gracilis. — S. *feminæ* antennis anticis gracillimis usque ad basin, rectis, inter sese prope 130° divaricatis, articulo primo obsoleto, secundo quartum æquante et dimidio tertio longiore, quarto non arcuato; digito pedis antici dimidio articulo secundo longiore; setis caudalibus fere duplo corpore longioribus.

Long. $\frac{1}{24}''$. — *Hab.* in mari Pacifico juxta insulas Kermadec et Tonga.

4. Setella crassicornis. — S. *maris* (?) antennis anticis crassioribus, rectis, inter sese 130° divaricatis, articulo primo obsoleto, secundo tertioque brevibus, quarto appendiculato, hoc etiam sexto ultimoque tertium longitudine duplo superante; digito pedis antici dimidii articuli secundi longitudine; setis caudalibus prope sesqui corporis longitudine.

Long. $\frac{1}{24}''$. — *Hab.* in mari Sinense.

5. Setella aciculus. — S. *feminæ* antennis crassiusculis fere rectè divaricatis, ad basin paulum curvatis, articulo primo perbrevi, secundo quartum longitudine æquante et longiore quam tertii dimidium; pedis antici digito dimidii articuli secundi longitudine; setis caudalibus sesqui corporis longitudine.

Hab. in mari Indico, prope Fretum Sundæ.

XVIII

CONSPECTUS CRUSTACEORUM, ETC.

(CONVENTUI EXHIBITA DIE 8 NOV., 1849.)

Conspectus Crustaceorum quæ in Orbis Terrarum circumnavigatione, Carolo Wilkes *e Classe Reipublicæ Fœderatæ Duce*, *lexit et descripsit* Jacobus D. Dana. Pars II.*

Familia III. CALANIDÆ.

Oculi simplices; etiam sæpe alii duo inferiores deorsum spectantes. *Pedes mandibulares maxillaresque* articulati et longe setigeri. *Sacculus oviger* unicus. *Antennæ anticæ* elongatæ, non appendiculatæ. *Antennæ posticæ* apice setigeræ.

Genera notis sequentibus distinguenda : † —

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* Vide Partem I., Vol. I. p. 149.

† Membra pedalia Cyclopaceorum ordine sequentia : —

I. Pedes mandibulares duo (membra cephalothoracis, ad normam, *quarta*, — ct. iv.).

II. Maxillæ duæ (ct. v.).

III. Maxillipedes (vel maxillæ) duo (ct. vi.).

IV. Pedes antici (vel maxillipedes) duo (ct. vii.).

V., VI., VII., VIII., et sæpe IX. Pedes biremes octo vel decem (ct. viii., ix., x., xi., xii.).

- Oculis inferioribus nullis.
  - Antennis anticis nec angulo flexis, nec articulatione geniculatis.
    - Pedibus posticis (ct. xii.) non prehensilibus, sæpe obsoletis.
      - Pedibus anticis (ct. vii.) majoribus quam maxillipedes (ct. vi.), lateraliter porrectis, non geniculatis. . . . . . 1. CALANUS.
      - Pedibus anticis minoribus quam maxillipedes. Maxillipedibus sub corpore geniculatis. Abdomine longissimo. 2. ~~SCRIBELLA~~. Oithona, Baird
    - Pedibus posticis elongatis, subulatis, uno subprehensili; pedibus anticis duplo geniculatis, sub corpore gestis, apice deflexis. . . . 3. EUCHÆTA.
  - Antennis anticis angulo levissimè flexis, nunquam articulatione geniculatis. Pedibus posticis *maris* prehensilibus. . 4. UNDINA.
  - Antennâ anticâ *maris* dextrâ geniculante.
    - Maxillipedibus duplo geniculatis, inflexis, setis longis, nudis. . . . . 5. CANDACE.
    - Max. rectis, setis longis, setulosis. . . . . 6. CYCLOPSINA.
- Oculis superioribus nullis, inferioribus grandibus. Antennâ anticâ dextrâ *maris* geniculante; aliis *Calano* affinibus. . . . . 7. CATOPIA.
- Oculis inferioribus et superioribus.
  - Antennâ anticâ dextrâ *maris* non geniculante, ambabus flexilibus, setis diffusis. Pedibus posticis parvulis, uniarticulatis. . . . . 8. ACARTIA.
  - Antennâ anticâ dextrâ *maris* geniculante; setis non diffusis. Pede postico dextro crasso, prehensili. . . . 9. PONTELLA.

Genus I. CALANUS. (*Leach.*)

Rostrum furcatum. *Antennæ anticæ* sive leviter curvatæ, sive rectæ, *maris* non geniculantes. *Pedes postici* (ct. xii.) obsolescentes, *maris* non prehensiles. *Pedes antici* (ct. vii.) elongati, latè porrecti, maxillipedibus (ct. vi.) majores, non geniculati. *Oculi inferiores* nulli. Cephalothorax 4 – 5-articulatus. *Rami antennarum posticarum* subæqui, ramo breviore ad apicem 3-setis instructo, in dorso setigero.*

In ambiguis, etiam numeri (*scil.* ct. iv., ct. v., *etc.*) sæpe subjuncti.

Mandibulum articulus pedis mandibularis primus est, et "palpi" articuli sequentes pedis reliqui sunt.

* Species optime distinguendæ sunt: —

1. Per gestum antennarum anticarum; etiam per setas, præcipuè apicales et subapicales; per longitudinem et numerum articulorum:
2. Per maxillipedes, et pedes anticos:
3. Per pedes posticos thoracicos:
4. Per numerum segmentorum cephalothoracis, et characteres segmentorum antici posticique:

Syn. — Cyclops, *Müller*. — Calanus, *Leach*. — Cetochilus? *Roussel de Vauzème*.

I. SETÆ ANTENNARUM ANTICARUM APICALES SUBAPICALIBUS LONGIORES.

A. *Styli caudales curti.*

1. Calanus rotundatus. — Frons rotundata. Cephalothorax 4-articulatus, crassus, posticè obtusus. Antennæ anticæ corpore vix breviores, 24-articulatæ, duplo curvatæ, apicibus fronte paulo posteriores, articulo ultimo elongato; setis apicalibus articulum æquantibus, anticis apice remotis, setis subapicalibus minutis. Styli caudales brevissimi; setis inæquis, secundis abdomine longioribus et apice divaricatis.

Long. $\frac{1}{12}''$. — *Hab.* in mari Pacifico, lat. aust. 32° 24′, long. occ. 166°; lat. bor. 3°, long. orient. 176°; lat. bor. 28°, long. orient. 171° 30′. — Lect. die 9 Ap., 1840; die 19 Ap., 1841; et die 17 Maii, 1841.

2. Calanus comptus. — Frons rotundata. Cephalothorax 4-articulatus, posticè obtusus. Antennæ anticæ tenuissimæ, cephalothorace paulo longiores, fermè 24-articulatæ, duplo curvatæ, apicibus fronte posteriores, articulo ultimo elongato (forsan duplice); setis apicalibus articulum fere æquantibus, anticis apice remotis, posticâ penultimâ articuli longitudine, anticâ penultimâ et antepenultimis minutis. Styli caudales breves; setis strictis, rectis, duobus paulum longioribus.

Long. $\frac{1}{12}''$. — *Hab.* in mari Pacifico, lat. bor. 40°, long. occ. 157°; lat. bor. 45°, long. occ. 156°; lat. aust. 21½°, long. occ. 136°. — Lect. diebus 2, 6 Jul., 1841; 13 Aug., 1839.

3. Calanus nudus. — Frons rotundata, prominulus. Cephalothorax 4-articulatus, posticè subacutus. Antennæ anticæ cephalothorace vix longiores, fermè 18-articulatæ, articulo ultimo non longiore; setis totis brevissimis, apicalibus articulo non longioribus, et anticis apice vix remotis, subapicalibus minutis. Styli caudales paulum oblongi, setis rectis, strictis, abdomine non longioribus.

Long. $\frac{1}{20}''$. — *Hab.* in mari Atlantico, lat. bor. 8° – 0°, long. occ. 21° – 18°, et lat. aust. 0° – 6°, long. occ. 18° – 25°. — Lect. diebus 20, 22, 25 Oct., et 1, 3, 5, 8, 12 Nov., 1838.

4. Calanus Magellanicus. — Frons rotundata. Cephalothorax 4-

5. Per stylos caudales et eorum setas:

Articulatio cephalothoracis non valet *genera* distinguere. Numerus segmentorum abdominis per ætatem variat, et vix valet *species* distinguere.

articulatus, posticè obtusus. Antennæ anticæ corpore breviores, duplo curvatæ, apicibus fronte valde posteriores, articulis quatuor ultimis brevibus, subæquis; setis totis perbrevibus, apicalibus articulo[*] brevioribus, anticis apice remotis, subapicalibus posticis minutis, anticis obsoletis. Styli caudales perbreves, setis abdominem fere æquantibus.

Long. $\frac{1}{24}''$. — *Hab.* in mari Pacifico, lat. aust. 52°, prope Patagoniam. Lect. die 27 Mar., 1839.

5. Calanus crassus. — Frons rotundata. Cephalothorax crassus, 4-articulatus, posticè vix subacutus. Antennæ anticæ corpore breviores, apicibus fronte valde posteriores, setis brevibus, apicalibus paulo longioribus, subapicalibus minutis, aut obsoletis. Styli caudales perbreves, setis subæquis abdomine paulo brevioribus.

Long. $\frac{1}{16}''$. — *Hab.* in mari Atlantico, lat. aust. 9°, long. occident. 17° 30′. — Lect. die 9 Maii, 1842.

6. Calanus furcicaudus. — Frons triangulata. Cephalothorax 4-articulatus, capite subito angustatus, posticè obtusus. Antennæ anticæ corpore paulo breviores, duplo curvatæ, apicibus fronte posteriores, fermè 24 (26 ?)-articulatæ; articulo ultimo paulo longiore; setis brevibus, prope basin numerosis, apicalibus articulo paulo longioribus et anticis apice parcè remotis, subapicalibus minutis. Styli caudales setæque latè divaricati, setis inæquis, secundis abdomine longioribus.

Long. $\frac{1}{12}''$. — *Hab.* in mari Pacifico, lat. bor. 3°, long. orient. 173°. — Lect. die 28 Ap., 1841.

7. Calanus arcuicornis. — Frons obtusa. Cephalothorax 4-articulatus, capite angustatus, posticè subacutus. Antennæ anticæ cephalothorace vix longiores, leviter arcuatæ, apicibus fronte vix posteriores, articulis 4 ultimis subæquis, setis perbrevibus, apicalibus articulo valde brevioribus, duabus uncinatis, subapicalibus obsoletis, prope basin paucis brevibus uncinatis. Abdomen angustum, lineare. Styli caudales per breves, setis strictis, rectis, abdominis longitudine.

Long. $\frac{1}{16}''$. — *Hab.* in mari Pacifico, lat. aust. 32° 24′, long. orient. 178° 15′. — Lect. die 9 Ap., 1840.

B. *Styli caudales valde elongati.*

8. Calanus turbinatus. — Frons obtusa. Cephalothorax anticè crassus, posticè attenuatus (idcirco, segmentum posticum abdomine

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[*] In his, "setæ articulo breviores" et aliis similibus, articulus ille has setas gerens *passim* intelligentus.

parcè latius) obtusiusculus. Antennæ anticæ duplo leviter curvatæ, corpore breviores, tenuissimæ, articulis 5 ultimis subæquis; setis totis perbrevibus, apicalibus subapicalibusque articulo non longioribus. Styli caudales tenues, paralleli, setis dimidio brevioribus.

Long. $\frac{1}{12}''$. — *Hab.* in mari "Sulu." — Lect. die 29 Jan., 1842.

9. Calanus stylifer. — Frons truncata. Cephalothorax curtus, posticè abdomine valde latior et longè acutus, 5-articulatus, segmento ultimo brevissimo. Antennæ anticæ duplo paululum curvatæ, apicibus fronte non posteriores; setis perbrevibus, apicalibus et penultimâ posticâ fere articuli longitudine, penultimâ anticâ et antepenultimis brevissimis. Styli caudales tenues, fere abdominis longitudine, recti, paralleli, setis non longioribus, unâ valde externâ.

Long. $\frac{1}{12}''$. — *Hab.* in mari Atlantico, lat. aust. 23° – 24°, long. occ. 41° – 43°. — Lect. die 19 Nov., 1838, et 9 Jan., 1839.

10. Calanus curtus. — *C. stylifero* similis, sed curtior. Cephalothorax 5-articulatus, segmentis 4 posticis subæquis. Antennæ anticæ corpore paululo longiores,* tenuissimæ, duplo paulum curvatæ, apicibus fronte vix anteriores; setis perbrevibus, apicali anticâ longiore, articulum non superante. Styli caudales tenues, fere abdominis longitudine, vix recti, setis non longioribus, flexuosis, unâ valde externâ.

Long. $\frac{1}{20}''$. — *Hab.* in mari "Sulu"; etiam freto Sundæ. — Lect. die 27 Jan., et die 2 Mar., 1842.

11. Calanus scutellatus. — Latè depressus. Cephalothorax 4-articulatus, segmento antico anticè fortè arcuato, posticè latè producto et acuto, segmento postico utrinque longè acuto, et divaricato. Antennæ anticæ corpore paululo longiores, duplo curvatæ, apicibus fronte vix anteriores; setis brevibus, apicali anticâ penultimâque posticâ articuli longitudine, aliis subapicalibus perbrevibus. Styli caudales tenues, fere abdominis longitudine, parcè divaricati.

Long. $\frac{1}{16}''$. — *Hab.* in mari "Sulu." — Lect. die 27 Jan., 1842.

II. SETÆ ANTENNARUM ANTICARUM APICALES SUBAPICALIBUS NON LONGIORES.

A. *Setæ caudales totæ mediocres. Frons obtusa, non elongata.*

a. Cephalothorax 4-articulatus.

12. Calanus pavo. — Frons subtriangulata, obtusa. Cephalothorax posticè obtusus. Antennæ anticæ corpore dimidio longiores, duplo

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* I. e. stylis exclusis, ut passim.

curvatæ, articulo ultimo longiore, setis longiusculis. Abdomen brevissimum. Styli caudales breves, divaricati, setis fere corporis longitudine, latis, eleganter plumiformibus, flabellatim divaricatis.

Long. $\frac{1}{24}''$. — *Hab.* in mari Atlantico, lat. bor. 12°, long. occ. 24°. — Lect. die 9 Oct., 1838.

13. Calanus levis. — Frons obtusa. Cephalothorax mediocris, posticè subacutus. Antennæ anticæ corpore vix longiores, duplo leviter curvatæ, apicibus fronte non anteriores; setis brevibus, 4 – 5 remotis longioribus, apicalibus et anticâ penultimâ fere articuli longitudine, posticis penultimâ antepenultimâque paulo longioribus, subæquis, anticâ antepenultimâ obsoletâ. Styli caudales parce oblongi, setis rectis, appressis, abdominis longitudine.

Long. $\frac{1}{20}''$. — *Hab.* in mari Atlantico juxta "Rio de Janeiro." — Lect. die 7 Jan., 1839.

14. Calanus medius. — Frons rotundata. Cephalothorax posticè obtusus. Antennæ anticæ cephalothorace paulo longiores, duplo curvatæ, apicibus fronte posteriores; setis perbrevibus, 4 – 5 remotis longioribus, posticâ apicali et anticâ penultimâ largè articuli longitudine, posticâ penultimâ paulo breviore, posticâ antepenultimâ duplo longiore. Styli caudales breves, setis appressis, abdomine brevioribus.

Long. $\frac{1}{16}''$. — *Hab.* in mari Pacifico, lat. bor. 44°, long. occ. 153°. — Lect. die 6 Jul., 1841.

15. Calanus placidus. — Frons rotundata. Cephalothorax posticè obtusus. Antennæ anticæ corporis longitudine, duplo leviter curvatæ, apicibus fronte paulo posteriores; setis apicalibus brevibus, posticis penultimâ antepenultimâque valde elongatis, anticâ penultimâ dimidio breviore. Styli caudales breves.

Long. $\frac{1}{12}''$. — *Hab.* in mari Pacifico, prope insulas "Kingsmill"; etiam lat. bor. 40°, long. occ. 157°. — Lect. die 30 Ap., et 2 Jul., 1841.

16. Calanus recticornis. — Frons obtusa. Cephalothorax posticè rotundatus. Antennæ anticæ corpore longiores, rectissimæ, apicibus fronte non anteriores, articulo primo (2?) crassè oblongo, ultimo paulum demisso; setis brevibus, articuli secundi subelongatâ, articuli antepenultimi posticâ longiore (= 4 artic.), penultimis posticâ et anticâ paulo brevioribus, apicali posticâ minore, articulo longiore, duabus aliis apicalibus brevibus et subuncinatis. Styli caudales breves; setis mediocribus, parcè diffusis.

Long. $\frac{1}{12}''$. — *Hab.* in mari "Sulu." — Lect. die 1 Feb., 1842.

b. Cephalothorax 5 – 6-articulatus.

1. *Cephalothorax posticè obtusus aut breviter subacutus.**

17. CALANUS SETULIGERUS. — Frons rotundata. Cephalothorax 5 (6?)-articulatus, posticè obtusus, articulis subæquis. Antennæ anticæ corpore paulo longiores, duplo curvatæ, setis prope basin plerumque duplo longioribus quam articuli et numerosis, setâ articuli sexti (forsan quinti) longiore, setis duabus posticis subapicalibus longis, subæquis, apicalibus brevibus, anticâ penultimâ longiore quam articulus. Styli caudales perbreves; setis mediocribus, parcè diffusis, secundis fere duplo longioribus.

Long. $\frac{1}{16}''$. — *Hab.* in mari Atlantico, lat. bor. 6° – 9°, long. occ. 21° – 24°. — Lect. diebus 13 – 18 Oct., 1838.

18. CALANUS PELLUCIDUS. — Frons rotundata. Cephalothorax 5-articulatus, posticè obtusus, articulo ultimo brevi. Antennæ anticæ corporis longitudine, setis subapicalibus posticis longiusculis. Styli caudales oblongi.

Long. $\frac{1}{24}''$. — *Hab.* in mari Atlantico, lat. bor. $14\frac{1}{2}$°, long. occ. 21°. — Lect. die 5 Oct., 1838.

19. CALANUS AFFINIS. — Frons rotundata. Cephalothorax 5-articulatus, posticè obtusus, articulis posticis subæquis. Antennæ anticæ corporis longitudine, apicibus fronte posteriores; setis brevibus, duabus posticis subapicalibus prælongis, anticâ penultimâ dimidio breviore, apicalibus brevibus. Styli caudales perbreves, setis diffusis, secundis fere duplo longioribus quam primæ.

Long. $\frac{1}{12}''$. — *Hab.* in mari prope insulam "Sumatra." — Lect. die 3 Mar., 1842.

20. CALANUS FLAVIPES. — Frons triangulata, vix prominula. Cephalothorax 5-articulatus, posticè attenuatus, obtusus aut subacutus. Antennæ anticæ corpore paulo longiores, duplo leviter curvatæ, apicibus fronte vix posteriores; setas *affini* similes. Styli caudales oblongi, setis mediocribus, non diffusis. Abdomen 2-articulatum; — an adultum?

Long. $\frac{1}{10}''$. — *Hab.* in mari Atlantico, prope "Rio de Janeiro." — Lect. die 7 Jan., 1839.

21. CALANUS TENUICORNIS. — Frons rotundata. Cephalothorax 5-articulatus, posticè obtusus, articulis posticis subæquis. Antennæ anticæ sesqui corporis longitudine, tenuissimæ, duplo levissimè curvatæ,

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* Anguli postici cephalothoracis adulti sæpe elongati et subacuti aut acuti.

apicibus fronte vix posteriores, articulis tribus ultimis subæquis; setis brevibus, articuli tertii setâ longiore, setis duabus posticis subapicalibus prælongis, anticâ penultimâ prope dimidio breviore, apicalibus brevibus. Styli caudales oblongi (latitudine duplo longiores).

Long. $\frac{1}{12}''$. — *Hab.* in mari Pacifico, lat. bor. 40°, long. occ. 157°. — Lect. die 2 Jul., 1841.

22. Calanus sanguineus. — Frons rotundata. Cephalothorax 5-articulatus, posticè obtusus aut subacutus, articulis posticis subæquis. Antennæ anticæ corporis longitudine, fere rectæ, apicibus fronte vix posteriores; setis brevibus, articuli tertii longiore, subapicalibus *tenuicorni* fere similibus. Styli caudales paulum oblongi, setis mediocribus, diffusis, secundis longioribus.

Long. $\frac{1}{10}''$. — *Hab.* in mari Pacifico, lat. bor. 32°, long. occ. 175°; lat. bor. 44°, long. occ. 153°; forsan in mari "Sulu." — Lect. die 28 Maii, et die 6 Jul., 1841, etiam die 28 Jan., 1842. — Var. *perspicax* (oculus transversim reniformis) in mari "Viti," Jul., 1840.

23. Calanus mundus. — Frons rotundata. Cephalothorax posticè obtusus, 5-articulatus, articulis posticis subæquis. Antennæ anticæ corpore parcè longiores, bene rectæ, apicibus fronte non posteriores, articulo primo (2do?) crassè oblongo et setis inflexis instructo; setis perbrevibus, articuli secundi longiore, apicalibus brevibus, posticâ antepenultimâ longâ, posticâ penultimâ duplo breviore, anticâ penultimâ paulo minore (articulum æquante), anticâ antepenultimâ minutâ. Abdomen 4–5-articulatum. Styli caudales breves, setis appressis, secundis longioribus.

Long. $\frac{1}{10}''$. — *Hab.* in mari Pacifico, lat. bor. 44°, long. occ. 154°.

C. recticorni affinis; sed cephalothorax 5-articulatus.

24. Calanus inauritus. — Frons rotundata. Cephalothorax posticè obtusus, 5-articulatus, articulo ultimo brevissimo. Antennæ anticæ fere rectæ, corpore paulo breviores, articulo primo valde elongato (an duplice?) tribus setis pendulis subclavatis et aliis setis brevibus uncinatis instructo, setis apicalibus et anticis subapicalibus perbrevibus, subapicalibus posticis articulo vix longioribus, inæquis. Styli caudales breves, setis parcè diffusis aut appressis.

Hab. in mari Atlantico, lat. bor. 6°, long. occ. 21°. — Lect. die 22 Oct., 1838.

2. *Cephalothorax posticè acutus, angulis posticis abdomini appressis.*

25. Calanus simplicicaudus. — Frons obtusa. Cephalothorax 5-

articulatus, segmento postico angusto et posticè brevissimè acuto. Antennæ anticæ corpore paulo longiores, basi arcuatæ, alioque fere rectæ, apicibus fronte parcè posteriores; setis brevibus, duabus subapicalibus posticis longis, inæquis, anticâ penultimâ duplo breviore, apicalibus brevibus. Abdomen 2-articulatum: (an adultum?). Styli caudales paulum oblongi.

Hab. in mari Pacifico, lat. bor. 45°, long. occ. 153°.

C. flavipedi abdominem et angustum articulum cephalothoracis posticum affinis; antennarum anticarum setas apicales subapicalesque *C. sanguineo* similis.

26. Calanus appressus. — Frons obtusa. Cephalothorax posticè attenuatus, angulis posticis elongatè acutis abdominem appressis, 5-articulatus, articulis posticis longitudine subæquis. Antennæ anticæ corpore paulo longiores, duplo leviter curvatæ, articulo ultimo valde graciliore quam penultimus; setis brevibus, duabus posticis subapicalibus prælongis, subæquis, strenuis, anticâ penultimâ duplo breviore, apicalibus articulo non longioribus. Styli caudales breves; setis secundis longioribus.

Long. $\frac{1}{12}''$. — *Hab.* in mari Pacifico, lat. bor. 25°, long. orient. 167°; in mari juxta "Sumatra"; etiam lat. aust. 30°, long. orient. 13°. — Lect. die 14 Maii, 1841, et die 4 Mar., et 21 Apr., 1842.

3. *Cephalothorax posticè longè acutus, angulis posticis remotis.*

27. Calanus communis. — Frons rotundata. Cephalothorax posticè longè acutus, 5-articulatus, articulis posticis subæquis. Antennæ anticæ corpore paulo longiores, duplo leviter curvatæ, apicibus fronte non anteriores, setis apicalibus brevibus, duabus posticis subapicalibus longis, subæquis, anticâ penultimâ quadruplo breviore, setis totis aliis brevibus. Styli caudales perbreves, setis secundis duplo longioribus.

Long. $\frac{1}{10}''$. — *Hab.* in mari Atlantico, inter lat. bor. 8° et lat. aust. 5°, long. occ. 23° – 15°; etiam, lat. aust. 4½° – 1°, long. occ. 25° – 30½°. — Lect. diebus 18, 20, 27, 31 Oct., 2, 3, 8, 12 Nov., 1838; 13, 16 Maii, 1842.

C. affini similis; sed anguli postici cephalothoracis longè acuti. An distinctio vera?

28. Calanus amænus. — *C. communi* antennas anticas setasque caudales affinis. Cephalothorax 5-articulatus, sed articulo ultimo brevissimo; angulis posticis longè acutis.

Long. $\frac{1}{10}''$. — *Hab.* in mari Pacifico prope insulas "Samoa," et in mari "Sulu." — Lect. die 26 Feb., 1841, et die 1 Feb., 1842.

29. Calanus bellus. — Frons rotundata. Cephalothorax posticè longè acutus, 5-articulatus, articulis posticis subæquis. Antennæ anticæ corpore paululo longiores, vix duplo curvatæ, apicibus fronte non anteriores; setis brevibus, tertii articuli longâ, duabus posticis subapicalibus longis, subæquis, apicalibus brevibus, anticâ penultimâ paulo longiore. Styli caudales breves, setis diffusis, secundis fere duplo longioribus.

Long. $\frac{1}{8}''$. — *Hab.* in mari "Sulu," et freto "Banca." — Lect. die 2 Feb., et die 2 Mar., 1842.

C. setuligero affinis; sed anguli postici cephalothoracis non obtusi, et setæ caudales valde diffusiores. *C. communi* similis; sed seta tertii articuli antennarum anticarum longa est.

B. *Setæ caudales secundæ longissimæ. Frons sive obtusa, sive triangulato-acuta; rostro longè furcato, brachiis setiformibus.*

30. Calanus gracilis. — Gracilis. Frons rotundata. Cephalothorax elongatus, 5-articulatus, posticè obtusus, articulis posticis subæquis. Antennæ anticæ sesqui corpore longiores, rectæ, 160° inter sese divaricatæ; setis brevibus, duabus posticis subapicalibus longis, apicalibus et anticis subapicalibus brevibus. Abdomen curtum, 4-articulatum. Styli caudales breves, setis secundis dimidio corporis longioribus.

Long. $\frac{1}{8}''$. — *Hab.* in mari Atlantico, lat. aust. $4\frac{1}{2}$°, long. occ. 25°. — Lect. die 13 Maii, 1842.

31. Calanus elongatus. — Elongatus. Frons breviter triangulata subacuta, rostro longè et tenuiter furcato. Cephalothorax 4-articulatus, anticè angustatus, posticè obtusus. Antennæ anticæ sesqui corporis longitudine, rectæ, et latissimè divaricatæ, apicibus fronte vix anteriores, articulo penultimo abbreviato; setis plerumque brevibus, paucis remotis longiusculis, apicalibus diffusis articulo longioribus, subapicalibus posticis longis, inæquis, anticâ penultimâ minus dimidio breviore, anticâ antepenultimâ obsoletâ. Antennæ posticæ ramo curto 2-articulatæ. Abdomen curtissimum. Styli caudales brevissimi.

Long. $\frac{1}{5}''$. — *Hab.* in mari "Sulu." — Lect. die 1 Feb., 1842.

32. Calanus attenuatus. — Elongatus. Frons triangulata, acuta, rostro longè et tenuiter furcato. Cephalothorax anticè valde angustatus, posticè obtusus, 5-articulatus, articulo ultimo brevi. Antennæ anticæ corpore valde longiores, prope basin arcuatæ, alioque rectæ et

latissimè divaricatæ, apicibus fronte paulo anteriores, articulo penultimo abbreviato; setis vix brevibus, plerumque fractis, fere æquis, apicalibus et subapicalibus inæquis longiusculis, anticâ antepenultimâ obsoletâ. Antennæ posticæ ramo curto multiarticulato. Abdomen curtissimum. Styli caudales perbreves, setis secundis dimidio corporis longioribus.

Long. $\frac{1}{8}''$. — *Hab.* in mari Pacifico, prope insulas "Kingsmill"; etiam in mari Sinensis. — Lect. die 13 Ap., 1841, et die 15 Feb., 1842.

C. *Frons valde elongata; rostro breviter valdeque furcato. Setæ caudales secundæ longissimæ* (?).

33. Calanus rostrifrons. — Gracillimus. Frons valde elongata, subacuta. Cephalothorax anticè paulo angustior, posticè rotundatus, 5-articulatus, articulo postico brevi, articulis penultimo antepenultimoque posticè acutis. Antennæ anticæ corpore valde longiores, leviter arcuatæ, latè divaricatæ, apicibus fronte anteriores, setâ articuli secundi longiusculâ, setis apicalibus articulo vix longioribus, duabus subapicalibus posticis longis. Abdomen curtum. Styli caudales latitudine fere duplo longiores; setis latissimè diffusis.

Long. $\frac{1}{8}''$. — *Hab.* in mari "Sulu." — Lect. die 2 Feb., 1842.

34. Calanus cornutus. — Gracillimus. Frons valde elongata, subacuta. Cephalothorax posticè rotundatus, 5-articulatus, articulo postico fere obsoleto, articulis tribus precedentibus posticè acutis. Antennæ anticæ sesqui corporis longitudine, fere rectæ, vix arcuatæ, apicibus fronte paululo anterioribus; setâ articuli tertii longiusculâ, setis apicalibus et penultimis brevibus, posticâ antepenultimâ longiore. Abdomen curtum. Styli caudales elongati; setis valde diffusis.

Long. $\frac{1}{8}''$. — *Hab.* in mari Atlantico, lat. bor. 1°, long. occ. 18°. — Lect. die 3 Nov., 1838.

Genus II. ~~SCRIBELLA. (*Dana.*)~~ Oithona, (Ba

Antennæ anticæ elongatæ, pauci-articulatæ, longè setigeræ, setis diffusis, *maris* non geniculantes. *Antennæ posticæ* simplices (?). *Maxillipedes* (ct. vi.) maximi, pedibus proximis majores, 4-articulati, geniculati et prorsum flexi. *Oculi inferiores* nulli. *Cephalothorax* 4–5-articulatus, capite non discreto. *Abdomen* valde elongatum, cephalothorace non brevius. *Styli caudales* oblongi, divaricati. [Sæpius, e basi pedis biremis, seta grandis lateraliter porrecta.]

Syn. — Scribella, *D.*, Amer. Jour. Sci., Ser. 2da, I. 227.

mifera, B. 1. ~~Scribella scriba~~. — Antennæ anticæ latè (130°) divaricatæ, fere corporis longitudine, 7-articulatæ, articulis secundo, quarto et duabus ultimis brevioribus, setis longissimis. Seta pedium biremium externa grandis, eleganter plumiformis. Abdomen 5-articulatum, cephalothorace longius, setis basalibus duabus longiusculis rectis. Styli caudales tenues, setâ externâ fere styli longitudine.

Long. $\frac{1}{20}''$. — *Hab.* in mari Atlantico, lat. bor. 4½° – 7°, long. occ. 20° – 22°; et lat. aust. 1°, long. occ. 30° 30′. — Lect. diebus 22, 23, 24, 26 Oct., 1838, 16 Maii, 1842. Forsan in mari Pacifico, prope insulas "Kingsmill"; an eadem species? — Lect. Ap., 1841.

2. Scribella setiger. — Antennæ anticæ fere corporis longitudine, latè divaricatæ, 7-articulatæ, articulis 3 ultimis brevissimis, tertio quartoque prælongis, setis longissimis. Seta pedium biremium externa longa, nuda, tenuissimè subclavata. Abdomen 5-articulatum, segmentis subæquis, setis basalibus duabus, unâ prælongâ, alterâ brevi. Styli caudales tenues, setâ externâ valde longiore quam stylus et prope basin styli insitâ.

Long. $\frac{1}{20}''$. — *Hab.* in mari Pacifico, prope insulas "Kingsmill." — Lect. die 18 Ap., 1841.

3. Scribella abbreviata. — Antennæ anticæ latè divaricatæ, 7-articulatæ, articulis duabus ultimis brevibus, tertio, quarto, quintoque subæquis. Setæ externæ pedium biremium obsoletæ (an distinctio sexualis?). Abdomen 4-articulatum setis basalibus dimidio abdominis valde brevioribus, subæquis, curvatis. Styli caudales paulum divaricati; setâ externâ perbrevi. — An S. *setigeræ* femina? Vix credo.

Long. $\frac{1}{24}''$. — *Hab.* in mari Pacifico, prope "Tierra del Fuego"; etiam lat. aust. 24°, long. occ. 175°; lat. bor. 44½°, long. occ. 153°. — Lect. die 21 Jan., 1839; die 21 Ap., 1840; die 7 Jul., 1841.

Genus III. EUCHÆTA. (*Philippi.*)

Frons acuta. *Rostrum* transversim emarginatum. *Antennæ anticæ* duplo leviter curvatæ, nunquam minimè angulo flexæ, *maris* non geniculantes. *Pedes postici* (ct. xii.) ambo maris valde elongati, subulati. *Pedes antici* (ct. vii.) maxillipedibus (ct. vi.) majores, duplo geniculati et sub corpore gesti, penecillum setarum nudarum reflexum ferentes. *Oculi inferiores* nulli. *Cephalothorax* 4 – 5-articulatus, capite non discreto.

Syn. — Euchæta, *Philippi*, Archiv für Naturgeschichte, Vol. IX. p. 55.

1. EUCHÆTA COMMUNIS. — Cephalothorax nudus, 4-articulatus, posticè obtusus. *Feminæ:* antennæ anticæ corpore vix breviores, setis paucis remotis prælongis, rectis, et aliis duabus flexis longissimis, apicalibus prælongis, posticâ antepenultimâ fere articuli longitudine. Setæ caudales rectæ, secundâ sæpius corporis longitudine. Ova cærulea. *Maris:* antennæ anticæ corpore paulo breviores, angulo levissimè flexæ, setis brevibus, paucis articulum apicalem vix superantibus. Pedes postici longissimi, longè subulati. Setæ caudales abdominis longitudine.

Long. $\frac{1}{8}''$. — *Hab.* in mari Atlantico, lat. bor. 9° – 0°, long. occ. 17° – 23°, et lat. aust. 0° – 13°, long. occ. 17° – 32°. — Lect. diebus 15, 18, 20, 24, 26, 27, 29, 30, 31 Oct., et 1, 3, 5, 9, 12 Nov., 1838; etiam die 11 Maii, 1842.

2. EUCHÆTA CONCINNA. — Cephalothorax nudus, ellipticus, capite lateraliter arcuatus, angulis posticis paulum productus et obtusus; *feminæ* 4-articulatus, *maris* 5-articulatus articulo postico perbrevi. Antennæ anticæ corpore paulo breviores, *feminæ*, *marisque* iis *E. communis* fere similes, setâ antepenultimâ posticâ brevissimâ. Setæ caudales abdomine breviores, secundâ *feminæ* fere corporis longitudine, *maris* abdominem paulo superantibus.

Long. $\frac{1}{10}''$. — *Hab.* in freto "Banca." — Lect. die 1 Mar., 1842.

3. EUCHÆTA PUBESCENS. — *Feminæ:* Cephalothorax pubescens, capite lateraliter angulatus, 5-articulatus, articulo postico perbrevi, subacuto. Antennæ anticæ corpore paulo breviores, setas *E. communi* fere similes, setis antepenultimis brevissimis. Pedes antici apice 5-articulati et subelongati. Abdomen 4-articulatum, articulo primo secundum longitudine duplo superante. Seta caudalis secunda fermè corporis longitudine.

Long. $\frac{1}{12}''$. — *Hab.* in mari Pacifico, in Archipel. "Paumotu." — Lect. die 29 Aug., 1839.

4. EUCHÆTA DIADEMA. — *Feminæ:* Cephalothorax pubescens, capite lateraliter angulatus, 4-articulatus, posticè obtusus. Antennæ anticæ fere corporis longitudine, setas *E. communi* fere similes, setâ posticâ penultimâ dimidium posticæ apicalis superante, setis antepenultimis brevissimis. Pedes antici apice 5 – 7 articulati, perbreves. Abdomen elongatum, articulo primo secundum longitudine paulo superante. Seta caudalis secunda corpore longior, nuda.

Long. $\frac{1}{7}''$. — *Hab.* in mari Pacifico, prope insulas "Kingsmill." — Lect. diebus 23, 24, 25 Mar., 1841.

Genus IV. UNDINA. (*Dana.*)

Antennæ anticæ ante medium angulo leviter flexæ, apicibus fronte posteriores, *maris* non geniculantes. *Pedes postici* (ct. xii.) *maris* grandes, dextro subcheliformi. *Pedes antici* (ct. vii.) elongati, maxillipedibus sæpe majores et valde porrecti, non geniculati. *Oculi inferiores* nulli. *Cephalothorax* 4 – 5-articulatus, capite non discreto.

1. Undina vulgaris. — Frons obtusa. Cephalothorax 4-articulatus, posticè rotundatus. Antennæ anticæ corporis longitudine, ad articulum octavum leviter reflexæ; setis brevibus, setâ articuli tertii longâ, flexâ, setis apicalibus perbrevibus, unâ uncinatâ, posticâ antepenultimâ longiusculâ, penultimis anticâ posticâque paulo brevioribus, hâc ad extremitatem uncinulatâ. Abdomen 5-articulatum. Styli caudales breves, setâ secundâ duplo longiore.

Long. $\frac{1}{12}''$. — *Hab.* in freto "Banca," juxta insulam "Sumatra"; etiam in mari Atlantico, lat. aust. 4° – 9°, long. occ. 17½° – 25°. — Lect. die 1 Mar., et diebus 9, 13 Maii, 1842.

2. Undina simplex. — Frons obtusa. Cephalothorax posticè rotundatus, 5-articulatus, articulo ultimo breviore. Antennæ anticæ corporis longitudine, articulo primo elongato; setis perbrevibus, setâ articuli secundi longiusculâ, flexâ, setis penultimis articuli longitudine et rectis, posticâ antepenultimâ dimidio longiore, apicalibus minutis, unâ uncinatâ.

Long. $\frac{1}{20}''$. — *Hab.* in mari Pacifico, prope insulas "Kingsmill," et lat. bor. 25°, long. orient. 167°. — Lect. die 25 Mar., et die 14 Maii, 1841.

3. Undina inornata. — Frons rotundata. Cephalothorax posticè vix acutus, 5-articulatus, articulo postico brevi. Antennæ anticæ corporis longitudine, setis perbrevibus, setâ articuli secundi (tertii ?) longiusculâ, rectâ, setâ apicali posticâ articuli longitudine, anticâ penultimâ sublongâ, posticâ brevi, posticâ antepenultimâ articulum vix superante. Styli caudales parcè oblongi.

Long. $\frac{1}{12}''$. — *Hab.* in mari Atlantico, lat. bor. 4°, long. occ. 19°. — Lect die 27 Oct., 1838.

Genus V. CANDACE. (*Dana.*)

Frons quadrata. *Oculi inferiores* obsoleti. *Antennæ anticæ* regulariter et breviter setigeræ, transversæ; dextrâ *maris* articulatione geniculante. *Maxillipedes* (ct. vi.) pedibus proximis majores, duplo geniculantes et inflexi, 4 articulati, setis nudis, longis. *Pedes postici maris* dispares, dextro prehensili. *Abdomen* mediocre. *Styli caudales* breves, setis strictè appressis. [Animal sæpius partim nigrescens.]

SYN. — Candace, *D.*, Amer. Jour. Sci., Ser. 2da, I. 228. 1846.

1. CANDACE ORNATA. — *Maris :* Cephalothorax 5-articulatus, articulis posticis quatuor, angulis posticis longè acutis, dextro longiore. Antennæ e basi arcuatæ, alioque rectè transversæ, corpore parcè breviores, articulo secundo paulum oblongo ; setis brevibus, quorum paucis secundo articulo parcè longioribus, apicali posticâ articuli longitudine, posticâ penultimâ paulo longiore, anticâ penultimâ breviore. Antennarum posticarum ramus brevis tenuis, valde brevior. Pes posticus dexter mediocris, articulo ultimo subuncinato, appendice laterali subcorneâ, articulum uncinatum longitudine superante.

Long. $\frac{1}{8}''$. — *Hab.* in mari Atlantico, lat. bor. 9° – 7°, long. occ. 19° – 21° ; etiam lat. aust. 6°, long. occ. 24°. — Lect. diebus 13, 18 Oct., 8 Nov., 1838.

2. CANDACE PACHYDACTYLA. — *Maris :* Cephalothorax 4-articulatus, angulis posticis longè acutis et setâ minutâ extus instructis. Antennæ anticæ fermè corporis longitudine, 23-articulatæ, e basi arcuatæ, deinde rectè transversæ ; dextrâ 21-articulatâ, medio incrassulatâ, articulo geniculationem præcedente valde elongato, et versus apicem subtilissimè pectinato, sequente non breviore. Antennarum posticarum rami longitudine subæqui. Pes posticus dexter crassus, apice rotundatus, appendice laterali crassè falcatâ, obtusâ.

Long. $\frac{1}{12}''$. — *Hab.* in mari Atlantico, lat. aust. 1° – 11°, long. occ. 14° – 30°. — Lect. diebus 7, 9, 13, 16 Maii, 1842.

3. CANDACE ETHIOPICA. — *Maris : C. ornatæ* antennas anticas et cephalothoracem affinis. Cephalothorax 4-articulatus. Antennæ anticæ e basi arcuatæ ; articulo antennæ dextræ articulationem geniculantem precedente omnino subtilissimè pectinato. Pes posticus dexter subclavatus, obtusus, setâ elongatâ, appendice laterali setaceâ, longâ, corneâ, flexâ. Antennarum posticarum ramus brevis parvus.

Long. $\frac{1}{12}''$. — *Hab.* in mari Pacifico, lat. aust. 18°, long. occ. 124° ; lect. die 8 Aug., 1839 : lat. bor. 15°, long. 180° ; lect. Dec., 1841.

4. CANDACE CURTA. — *Maris : C. ornatæ* similis. Cephalothorax 5-articulatus, posticè acutus. Pes posticus dexter apice subulatus, appendice laterali curtâ, spiniformi. Antennæ anticæ corpore parcè lon-

giores, a basi arcuatæ; articulis 13, 14, 15, 16, 17 antennæ dextræ incrassulatis, articulo 17 elongato apice prominulo, partim subtilissimè pectinato, sequentibus sex brevibus, et tenuissimis.

Long. $\frac{1}{12}''$. — *Hab.* in mari Pacifico prope "Valparaiso." — Lect. die 10 Ap., 1839.

5. Candace aucta. — *Feminæ:* Cephalothorax 5 – 6-articulatus, posticè subacutus aut obtusus. Antennæ anticæ fere corporis longitudine, e basi arcuatæ, apice prorsum parcè flexæ, articulo secundo longo et crasso. Abdomen 2 – 3-articulatum.

Long. $\frac{1}{24}''$. — *Hab.* in mari Pacifico, lat. aust. 9°, long. occ. 174°; etiam prope insulas "Kingsmill"; quoque in mari "Sulu." — Lect. die 26 Jan., 1841; die 14 Ap., 1841; Dec., 1841; die 28 Jan., 1842.

6. Candace truncata. — *Feminæ:* Cephalothorax posticè truncatus. Antennæ anticæ corporis longitudine, prope articulum sextum flexæ, deinde rectè transversæ et tenuissimæ; articulo secundo crasso, non longiore quam articulus tertius quartusve.

Long. $\frac{1}{12}''$. — *Hab.* in mari Pacifico, prope insulas "Samoa" et "Kingsmill," et in mari "Sulu." — Lect. die 25 Mar., et die 1 Ap., 1841; die 2 Feb., 1842.

Genus VI. CYCLOPSINA. (*Milne Edwards.*)

Rostrum furcatum. *Antennæ anticæ* sive rectæ, sive leviter curvatæ, *maris* dextrâ articulatione geniculante. *Maxillipedes* (ct. vi.) pedibus proximis majores, non geniculati, setis longis spinulosis instructi. *Oculi inferiores* nulli. *Cephalothorax* 4 – 7 articulatus, capite sæpe discreto. *Antennæ posticæ* iisdem *Calani* similes. *Pes posticus dexter maris* grandis et prehensilis. [Maxillipedes, et *maris* antennam anticam dextram pedemque posticum dextrum, *Pontellæ* affinis; antennam posticam, oculos, et habitum, *Calano* similis. *Si oculi inferiores* adsunt, species *Pontellæ pertinent.*]

Syn. — Cyclopsina (C. castor), *Milne Edwards.* — Cetochilus? *Roussel de Vauzème.* — Monoculus (M. Castor), *Jurine.* — Cyclops (C. castor), *Desmarest.* — Dioptomus (D. castor), *Westwood.* — Non Cyclopsina *Bairdii.*

1. Cyclopsina longicornis. — Frons rotundata. Cephalothorax posticè obtusus, 5-articulatus, articulis posticis æquis. Antennæ anticæ sesqui corporis longitudine, rectiusculæ, setis brevibus, duabus subapicalibus posticis prælongis, subæquis, apicalibus perbrevibus, anticâ penultimâ articuli longitudine. Styli caudales breves.

Long. $\frac{1}{8}''$. — *Hab.* in mari Atlantico, lat. aust. 4°, long. occ. 21°. — Lect. die 7 Nov., 1838. — An *Cetochilo septentrionali* (Goodsir) affinis?

2. Cyclopsina calanina. — Gracilis. Frons triangulata. Cephalothorax posticè obtusus, 6-articulatus, capite vix discreto, articulis posticis æquis. Antennæ anticæ corpore longiores, tenuissimæ, rectiusculæ, apicibus fronte non posteriores; setis brevibus, apicalibus anticis articuli longitudine, subapicalibus totis valde brevioribus; antenna *maris* dextra medio leviter incrassata. Styli caudales elongati, divaricati.

Long. $\frac{1}{10}''$. — *Hab.* in mari Pacifico, prope insulam "El Gran Cocal." — Lect. die 25 Mar., 1841.

3. Cyclopsina tenuicornis. — *Maris:* Frons triangulata. Cephalothorax posticè fere obtusus, 7-articulatus, capite discreto, articulis posticis æquis. Antennæ anticæ corpore longiores, apicibus fronte vix anteriores, tenuissimæ, rectiusculæ, setis brevibus, anticis apicalibus fere articuli longitudine, posticâ penultimâ paulo longiore. Abdomen 3-articulatum. Styli caudales elongati divaricati.

Long. $\frac{1}{16}''$. — *Hab.* in mari Pacifico, prope insulam "Depeyster"; lect. die 22 Mar., 1841. Etiam (?) in Archip. "Paumotu"; lect. Aug. 13, 1839.

4. Cyclopsina gracilis. — *Maris:* Antennæ anticæ corpore valde longiores; abdomen 4-articulatum; aliis *C. tenuicorni* similis.

Long. $\frac{1}{16}''$. — *Hab.* in mari Pacifico, lat. bor. 25°, long. orient. 167°. — Lect. die 14 Maii, 1841. — An var. *C. tenuicornis.*

Genus VII. CATOPIA.

Antennas posticas et antennarum habitum anticarum *Calano* affinis. Antennam anticam *maris* dextram *Pontellæ* affinis. *Oculi* superiores nulli; oculus inferior unicus (?).

Catopia furcata. — Gracilis. Caput quadratum, non discretum. Cephalothorax 4-articulatus, posticè 4-dentatus, dentibus acutis, externis longioribus. Styli caudales oblongi, divaricati. Antennæ anticæ corpore longiores, duplo curvatæ, apicibus fronte non anteriores; setis totis brevibus.

Long. $\frac{1}{16}''$. — *Hab.* in freto "Banka." — Lect. die 2 Mar., 1842.

Genus VIII. ACARTIA. (*Dana.*)

Antennæ anticæ rectiusculæ, flexiles, setis irregulariter diffusis, dextrâ *maris* non geniculante. *Maxillipedes* (ct. vi.) pedibus proximis majores, recti, setis setulosis longis instructi. *Pedes postici* (ct. xii.)

parvuli, uni-articulati, 2 setas divaricatas gerentes. *Oculi* duo inferiores et duo superiores. *Setæ caudales* mediocres.

1. Acartia limpida. — Gracilis. Frons triangulata. Cephalothorax posticè obtusus, 5-articulatus, capite discreto. Antennæ anticæ latè divaricatæ, rectiusculæ, vix corporis longitudine, 7 – 8-articulatæ, articulis ultimis tribus brevibus, precedentibus longis; setis prælongis, penultimâ posticâ dimidio breviore quam apicales. Styli caudales oblongi, tenues.

Long. $\frac{1}{20}''$. — *Hab.* prope Patagoniam. — Lect. diebus 14, 15 Jan., 1839.

2. Acartia negligens. — Gracillima. Frons triangulata. Cephalothorax angustus, posticè minutè apiculatus, capite fere discreto. Antennæ anticæ fere corporis longitudine, tenuissimæ, latissimè divaricatæ, apicibus fronte paulo anteriores, 7 – 9-articulatæ, articulis tribus ultimis brevibus; setis prælongis, posticâ penultimâ apicales æquante. Styli caudales tenuissimi, oblongi, setis latè divaricatis.

Long. $\frac{1}{16}''$. — *Hab.* in mari Pacifico, prope insulas "Kingsmill," et lat. bor. 28°, long. orient. 171°. — Lect. diebus 15 Ap., et 17 Maii, 1841.

3. Acartia tonsa. — Frons rotundata. Cephalothorax posticè obtusus, 6-articulatus, capite discreto. Antennæ anticæ multiarticulatæ, rectæ, apicibus fronte non anteriores, setis plerumque brevibus, paucis longiusculis (3 – 4-articulos simul sumtos longitudine æquantibus). Styli caudales perbreves.

Long. $\frac{1}{18}''$. — *Hab.* in "Port Jackson" Novi-Hollandiæ. — Lect. Mar., 1840.

4. Acartia laxa. — Gracilis. Frons rotundata. Cephalothorax 4-articulatus, capite non discreto, posticè longè acutus. Antennæ anticæ, rectiusculæ, corpore paulo longiores, nusquam fronte anteriores, multiarticulatæ, articulo primo longiore, setis longiusculis, valde inæquis. Abdomen breve. Styli caudales paulum oblongi, setis latissimè diffusis, abdomine non longioribus.

Long. $\frac{1}{15}''$. — *Hab.* in mari "Sulu," et freto "Banka." — Lect. diebus 2 Feb., et 2 Mar., 1842.

Genus IX. PONTELLA.

Rostrum furcatum. *Oculi* duo *superiores*, pigmentis sive coalitis sive remotis; duo *inferiores* coaliti. *Antennæ anticæ* multiarticulatæ, setis non diffusis, antennâ dextrâ *maris* geniculante. *Cephalo-*

thorax 4–7-articulatus, segmento cephalico sæpe discreto. *Maxillipedes* (ct. vi.) grandes, recti, setis longis, setulosis. *Pedes antici* (ct. vii.) minores. *Pes posticus* (ct. xii.) *dexter maris* crassus, prehensilis.

SYN. — Pontia, *Milne Edwards.** — Irenæus, *Goodsir.* — Broteas, *Lovén.*

I. PONTELLÆ CALANOIDEÆ. ANTENNÆ ANTICÆ DUPLO CURVATÆ, AD APICES FRONTE NON ANTERIORES. ANTENNÆ POSTICÆ, AD APICEM RAMI MINORIS, 3-SETIGERÆ.

1. PONTELLA ELLIPTICA. — *Feminæ :* Frons rotundata. Cephalothorax crassus, 4-articulatus, capite inermis, angulis posticis acutis, remotis. Oculi superiores remotiusculi, inferiores minuti. Antennæ anticæ duplo curvatæ, apicibus fronte valde posterioribus, corpore breviores, setis brevibus, subapicalibus perbrevibus, apicalibus vix articuli longitudine. Styli caudales oblongi, setis valde inæquis. (Cærulea, dorso sæpe argentea.)

Long. $\frac{1}{16}''$. — *Hab.* in freto "Banka." — Lect. die 2 Mar., 1842.

2. PONTELLA BRACHIATA. — *Maris :* Frons subtriangulata. Cephalothorax 6–7-articulatus anticè angustior, inermis, angulis posticis acutis, remotis. Oculi superiores remotiusculi aut coaliti. Antennæ anticæ corporis longitudine, duplo curvatæ, apicibus fronte non anterioribus, setis brevibus, posticâ penultimâ articulum longitudine fere duplo superante, anticâ apicali breviore, aliis apicalibus et subapicalibus brevioribus ; antenna dextra medio paulum incrassata, fere 23-articulata, duabus articulis medianis anticè unidentatis, articulo antepenultimum præcedente elongato, duplice. Pes posticus dexter maximus, digito elongato, rectè inflexo.

Long. $\frac{1}{12}''$. — *Hab.* in mari Pacifico, lat aust. 42°, long. occ. 78° 45′ ; lect. die 3 Ap., 1839. In syrtis "Lagulhas" ; lect. die 8 Ap., 1842. — *Feminæ* (an ejus speciei ?) frons vix triangulata ; styli caudales divaricati ; abdomen 3-articulatum (*maris* 4) ; anguli postici cephalothoracis divaricati. — Lect. in syrtis "Lagulhas" die 8 Ap., 1842.

II. ANTENNÆ ANTICÆ AD APICES FRONTE ANTERIORES.

A. *Caput lateribus inerme.*

1. Cephalothorax posticè obtusus aut brevissimè acutus.

3. PONTELLA PLUMATA. — *Feminæ :* Frons rotundata. Cephalo-

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* *Pontia* Papilionum generis vocabulum, itaque *Pontella* hìc scripsa.

thorax curtus, obesus, 6-articulatus, capite discreto, segmento postico perbrevi, et posticè vix acuto. Antennæ anticæ corpore paulo longiores, latè divaricatæ, fere rectæ, setis raris sublongis, apicalibus articulo plus duplo longioribus, subapicalibus brevioribus. Antennæ posticæ ramos valde inæquæ, setis ramorum et palporum sequentium fere corporis longitudine, instar plumarum. Styli caudales parce oblongi.

Long. $\frac{1}{12}$. — *Hab.* in mari Atlantico, lat. bor. 5°, long. occ. 21°.

4. Pontella turgida. — Frons rotundata. Cephalothorax crassus, obesus, 5 – 6 articulatus, capite discretus, posticè obtusus. Oculi superiores approximati. Antennæ anticæ corporis longitudine, fermè 21-articulatæ, 60° – 90° divaricatæ et prope medium obsoletè reflexæ ; setis brevibus, penultimâ posticâ longiore quam apicales aut aliæ subapicales. Antennæ posticæ ramos valde inæquæ, setis longis. Styli caudales oblongi. — *Maris* antenna antica dextra 10 – 12-articulata, articulo submediano latè subovato et apice acuto, articulis tribus sequentibus valde elongatis, ultimo triplice.

Long. $\frac{1}{24}$″. — *Hab.* in mari *Atlantico*, lat. bor. $8\frac{1}{2}$° – 0°, long. occ. 23° – 18° ; lect. diebus 15, 22, 23, 26 Oct., 1838. Lat. aust. 1° – $4\frac{1}{2}$°, long. occ. $17\frac{1}{2}$° – $21\frac{1}{2}$° ; lect. diebus 5, 6, 7 Nov., 1838. Lat. aust. 4° 30′, long. occ. 25° ; lect. die 13 Maii, 1842. Lat. bor. 0° 15′, long. occ. 31° ; lect. die 17 Maii, 1842. In mari *Pacifico* prope insulas "Kingsmill" ; lect. diebus 13, 28 Ap., 1841. In syrtis "Lagulhas" ; lect. die 8 Ap., 1842.

5. Pontella curta. — Frons rotundata. Cephalothorax curtus, crassiusculus, 5-articulatus, capite discreto, angulis posticis brevissimè acutis. Antennæ anticæ corpore breviores, rectæ, 105° divaricatæ, setis brevibus, apicali anticâ longiore. Antennæ posticæ ramos valde inæquæ, minore plus dimidio breviore. Styli caudales oblongi, non divaricati.

Long. $\frac{1}{20}$″. — *Hab.* prope insulam "Mindoro" et in freto "Sunda" ; lect. diebus 24 Jan. et 4 Mar., 1842. In syrtis "Lagulhas" ; lect. die 8 Ap., 1842.

6. Pontella contracta. — Frons rotundata. Cephalothorax 6 – 7-articulatus, capite discreto, angulis posticis brevissimè acutis, segmento postico fere obsoleto. Antennæ anticæ cephalothorace non longiores, 100° – 110° divaricatæ, rectæ, fermè 17-articulatæ, setis brevibus, apicali anticâ longiore. Rami antennarum posticarum valde inæqui. Styli caudales elongati. [Abdomen 2-articulatum.]

Long. $\frac{1}{18}$″. — *Hab.* in mari Pacifico, lat. aust. $18\frac{1}{4}$°, long. occ. 124°

30′; lect. die 7 Aug., 1839. An eadem species in mari Atlantico, lat. aust. 2°, long. occ. 20°; lect. die 6 Nov., 1838.

7. Pontella media. — Frons rotundata. Cephalothorax 5-articulatus, segmento postico brevissimo et valde angusto, non acuto, capite vix discreto. Oculi superiores remotiusculi, inferiores parvuli. Antennæ anticæ corporis longitudine, duplo curvatæ, fere transversæ, apicibus fronte anteriores, setis brevibus, rectis, apicalibus articuli longitudine, posticâ penultimâ parce longiore, aliis subapicalibus brevioribus. Styli caudales oblongi. [Abdomen 2-articulatum.]

Long. $\frac{1}{20}''$. — *Hab.* in mari "Sulu"; lect. die 27 Jan., 1842.

8. Pontella crispata. — *Feminæ:* Frons subtriangulata, obtusa. Cephalothorax 7-articulatus, segmento postico brevissimo, obtuso aut subacuto. Oculi superiores remotiusculi, inferiores mediocres. Antennæ anticæ vix corporis longitudine, latè divaricatæ, apicibus fronte valde anterioribus et prorsum curvatis; setis brevibus, prope basin confertis et paucis uncinatis, apicalibus et posticâ antepenultimâ articulo parce longioribus, posticâ penultimâ paulo longiore. Styli caudales parce oblongi, setis subæquis. [Abdomen 4-articulatum.]

Long. $\frac{1}{15}''$. — *Hab.* in mari *Pacifico*, prope insulas "Kingsmill"; lect. diebus 22, 26 Mar., 1841. In mari *Atlantico*, lat. bor. 8$\frac{1}{2}$°, long. occ. 23° 45′; lect. die 15 Oct., 1838.

9. Pontella detruncata. — Frons obtusa. Cephalothorax 5–6-articulatus, capite discreto, angulis posticis rectè truncatis et extus brevissimè acutis. Antennæ anticæ 22–24-articulatæ, vix corporis longitudine, late divaricatæ, apicibus fronte valde anterioribus et prorsum curvatis; setis brevibus, rectis, posticâ penultimâ longiore quam apicales vel aliæ subapicales. Styli caudales breves. Antenna dextra *maris*, medio incrassata, subteres, 12–13-articulata, articulo tertio elongato, obsoletè articulato, septimo (octavo?) brevi et subtriangulato duabus sequentibus tenuibus, longis. Pes posticus dexter *maris* crassissimè cheliformis, manu subovatâ, pollice laterali, obtuso, dimidio breviore, digito elongato, tenui et curvato.

Long. $\frac{1}{12}''-\frac{1}{16}''$. — *Hab.* in mari Pacifico, lat. aust. 26° 8′, long. occ. 178°; lect. die 18 Ap., 1840. Lat. aust. 5° 20′, long. orient. 175° 30′; lect. die 25 Mar., 1841: etiam prope insulas "Kingsmill."

10. Pontella simplex. — Frons obtusiuscula. Cephalothorax subgracilis, capite obsoletè discreto, segmento postico brevi et perangusto. Oculi superiores, subremoti, inferiores mediocres. Antennæ anticæ

cephalothorace breviores, 9-articulatæ, 100° divaricatæ; setis totis brevibus. Styli caudales elongati. [Abdomen 2-articulatum. An specimen adultum?]

Long. $\frac{1}{20}''$. — *Hab.* in mari Pacifico, lat. aust. 32° 24′, long. orient. 178°. — Lect. die 9 Ap., 1840.

11. Pontella exigua. — Gracilis. Frons obtusa. Cephalothorax 6-articulatus, capite discreto, segmento postico brevi, obtuso. Oculi inferiores maximi, valde elongati, subclaviformi. Antennæ anticæ corpore valde breviores, 120° (?) divaricatæ, setis perbrevibus, apicali anticâ longiore, subapicalibus brevibus. Antennæ posticæ tenues, ramo majore plus duplo longiore. Styli caudales oblongi. [An adultum? Abdomen 2-articulatum.]

Long. $\frac{1}{30}''$. — *Hab.* in mari Atlantico, lat. bor. $7\frac{1}{2}$° et $4\frac{3}{4}$°, long. occ. $23\frac{3}{4}$° et 19°; lect. diebus 16, 24 Oct., 1838.

2. Cephalothorax posticè productus et acutus.

* *Seta antennarum anticarum apicalis setis subapicalibus brevior.*

12. Pontella agilis. — *Feminæ: P. crispatæ* antennas similis. Anguli postici cephalothoracis acuti, fronte rotundatâ. Setæ antennarum anticarum fere rectæ prope basin confertæ. — Forsan *P. crispatæ* cephalothorax interdum posticè acutus et species non differt.

Long. $\frac{1}{8}''$. — *Hab.* in mari Atlantico, lat. aust. $19\frac{1}{2}$°, long. occ. $38\frac{3}{4}$°; lect. die 17 Nov., 1838: etiam (?) lat. bor. $9\frac{1}{4}$°, long. occ. 24° 18′.

13. Pontella acutifrons. — *Maris: P. crispatæ* et *agili* similis. Anguli postici cephalothoracis acuti. Frons acuta et prominens; rostro longissimè furcato et valde inflexo. Setæ antennarum anticarum rectæ, prope basin fere articuli secundi longitudine, posticâ penultimâ plus duplo longiore quam apicales. Antenna dextra medio incrassulata, subteres 12–13-articulata; articulis secundo et quinto æquis, septimo brevissimo, octavo valde elongato, subattenuato, recto, fere duplo longiore quam nono; nono ad apicem anticam instar spinæ valde producto; articulis sequentibus (ultimis) tribus, normalibus. Pes posticus dexter latissimè cheliformis, manu subquadratâ, pollice breviter spiniformi, digito recto, apice minuto inflexo, valde breviore quam manus.

Long. $\frac{1}{7}''$. — *Hab.* in mari Pacifico, prope insulam "El Gran Cocal," lat. aust. 5° 40′, long. orient. 175° 30′; etiam prope insulas "Kingsmill"; lect. diebus 25 Mar., 1 Ap., 1841.

14. Pontella acuta. — Frons longè acuta, rostro brevi, vix inflexo.

Cephalothorax 5-articulatus, capite discreto, angulis posticis elongatis, acutis. Oculi superiores remoti, inferiores parvi. Antennæ anticæ subtransversæ, fere corporis longitudine, fermè 21 – 22-articulatæ, apicibus fronte paulo anterioribus, et prorsum leviter curvatis, setis prope basin confertis longiusculis, posticâ penultimâ duplo longiore quam articulus, apicalibus et aliis subapicalibus brevioribus. Styli caudales oblongi. Antenna dextra *maris* subteres, fermè 13-articulata, articulo secundo longo, 6 sequentibus brevibus, proximis duobus elongatis et tenuibus, parce arcuatis, subæquis, 3 proximis (ultimis) normalibus. Pes posticus dexter *maris* latus, manu apice late orbiculatâ, pollice nullo, digito vix manus longitudine, paulum inflexo. [Cyanea. Abdomen 4-articulatum.]

Long. $\frac{1}{10}''$. — *Hab.* prope insulam "Mindoro"; lect. die 24 Jan., 1842. In mari Sinensi; lect. die 15 Feb., 1842.

† *Seta antennarum anticarum apicalis subapicalibus longior.*

15. PONTELLA RUBESCENS. — *Feminæ:* Frons rotundata. Cephalothorax 6-articulatus, capite discreto, segmento septimo obsoleto, angulis posticis acutis. Oculi superiores remoti; inferiores pigmentum bilobati. Antennæ anticæ fere 120° divaricatæ et rectæ; setis brevibus, apicali vix longiore quam articulus. Ramus major antennarum posticarum fere triplo longior. Styli caudales elongati, paralleli. [Abdomen 3-articulatum.]

Long. $\frac{1}{15}''$. — *Hab.* in mari Pacifico, prope insulam "Upolu"; lect. die 24 Feb., 1841. Prope insulam "El Gran Cocal"; lect. die 25 Mar., 1841.

16. PONTELLA EMERITA. — *Feminæ:* Crassa. Frons obtusa. Cephalothorax 6 – 7-articulatus, capite discreto, angulis posticis longè acutis, segmento postico brevi. Oculi superiores remoti. Antennæ anticæ cephalothorace vix longiores, fermè 100° divaricatæ, rectæ. Ramus major antennarum posticarum fere quadruplo longior. Styli caudales breves. [Abdomen 2-articulatum segmentis subæquis.]

Long. $\frac{1}{10}''$. — *Hab.* in mari prope Promontorium Bonæ Spei; lect. die 12 Ap., 1842.

17. PONTELLA REGALIS. — *Feminæ:* Crassissima. Frons rotundata. Cephalothorax 5 – 6-articulatus, angulis posticis longè acutis, capite discreto brevi. Oculi superiores remoti, inferiores parvi. Antennæ anticæ cephalothorace breviores, 100° – 110° divaricatæ, duplo leviter curvatæ. Ramus major antennarum posticarum quadruplo longior.

Styli caudales brevissimi. [Abdomen 2-articulatum, segmento secundo brevi.]

Long. $\frac{1}{7}''$. — *Hab.* in mari "Sulu"; lect. die 27 Jan., 1842.

18. Pontella perspicax. — Frons rotundata. Cephalothorax 6-articulatus, capite discreto, segmento postico non breviore, angulis posticis longè acutis. Oculi inferiores grandes et prorsum valde elongati. Antennæ anticæ corpore valde breviores, 100° – 110° divaricatæ, fermè 21-articulatæ, ante medium obsoletè flexæ. Styli caudales elongati. Antenna antica dextra *maris* 9 – 10-articulata, articulo quarto lato, subovato. Pes posticus dexter vix crassus; manu angustâ, breviusculâ, digito vix longiore acuminato, pollice setiformi, longissimo, reflexo. [Abdomen 5-articulatum.]

Long. $\frac{1}{12}''$. — *Hab.* in mari Atlantico, lat. aust. 0° 40′, long. occ. 18°; lect. die 3 Nov., 1838. Forsan, lat. bor. 7° 25′, long. occ. 20°; lect. die 17 Oct., 1838.

19. Pontella strenua. — *Maris:* Frons acutiuscula. Cephalothorax 5 – 6-articulatus, angulis posticis longe acutis, capite discreto. Oculi superiores remoti, inferiores mediocres. Antennæ anticæ fere corporis longitudine, 80° – 90° divaricatæ, 17 – 18 articulatæ, ad medium obsoletè flexæ. Ramus major antennarum posticarum fere triplo longior. Styli caudales breves. Antenna antica dextra *maris* 12 – 14-articulata, articulo mediano subovato, apice antico acuto. Pes posticus dexter crassiusculus, manu ovali, breviore quam carpus, pollice tenuissimo, acuto, parcè longiore, digito mediocri, subulato, rectiusculo. [Abdomen 5-articulatum.]

Long. $\frac{1}{12}''$. — *Hab.* in mari Pacifico, lat. aust. 3°, long. orient. 175°.

20. Pontella protensa. — *Maris:* Crassa. Frons rotundata. Cephalothorax 5 – 6-articulatus, capite discreto, brevi, angulis posticis longè acutis. Oculi superiores remoti, inferiores mediocres. Antennæ anticæ basi vix 60° divaricatæ et medio fere 70°. Ramus antennarum posticarum major plus quadruplo longior. Styli caudales oblongi. Antenna *maris* antica dextra *P. strenuæ* similis. [Abdomen 5-articulatum.]

Long. $\frac{1}{16}''$. — *Hab.* in fretis "Banka" et "Sunda"; lect. diebus 1, 4 Mar., 1842.

B. *Caput lateribus armatum.*

21. Pontella hebes. — *Feminæ:* Frons truncata. Cephalothorax 4-articulatus, posticè rotundatus. Oculi superiores disjuncti, infe-

riores parvi. Antennæ anticæ fere corporis longitudine, transversæ, apicibus fronte paulo anterioribus, prorsum parce curvatis, prope basin setis confertis longiusculis, et unâ sublongâ mobili. Setis apicalibus articuli longitudine, posticâ penultimâ paulo longiore, aliis subapicalibus brevibus. Styli caudales vix oblongi. [Abdomen 3-articulatum.]

Long. $\frac{1}{16}''$. — *Hab.* prope insulam "Sumatra"; lect. die 3 Mar., 1842.

22. Pontella frivola. — *Feminæ P. hebetis* similis. Sed cephalothorax posticè acutus; abdomen 4-articulatum. An species differt? — *Long.* $\frac{1}{16}''$. *Hab.* prope insulam "Sumatra"; lect. die 3 Mar., 1842.

Maris (an hæc species?) antenna antica dextra 9-articulata, subteres, incrassulata, articulis 2, 3, 4, 5, 6 totis longis, 3 sequentibus (ultimis) normalibus, articulo quarto longiore et crassiore, subcylindrico. Antennæ posticæ tenuissimæ, ramis fere æquis. Abdomen 4-articulatum, tenue; stylis parce oblongis. Anguli postici cephalothoracis acuti, dextro longiore. — *Long.* $\frac{1}{12}''$. *Hab.* in mari "Sulu"; lect. die 28 Jan., 1842.

23. Pontella detonsa. — Caput discretum, subtriangulatum, fronte obtusiusculâ. Cephalothorax 7-articulatus, segmento septimo brevissimo, posticè obtuso aut obtusiusculo. Oculi superiores remoti, inferiores subgrandes, vix elongati. Antennæ anticæ cephalothorace breviores, rectæ, fere 100° divaricatæ, 20 – 22-articulatæ, setis totis perbrevibus. Styli caudales elongati, vix divaricati. Antenna dextra *maris* paululum incrassata, teretiuscula, fermè 20-articulata. [Cyanea; interdum dorso margaritacea. Abdomen 3-articulatum.]

Long. $\frac{1}{8}''-\frac{1}{15}''$. — *Hab.* in mari Pacifico, lat. aust. 18° 10′, long. occ. 125° 20′; lect. die 8 Aug., 1839. Lat. aust. 12° 45′, long. occ. 171°; lect. die 5 Feb., 1841. Lat. aust. 11°, long. occ. 170°; lect. die 1 Feb., 1841. Lat. aust. 5° 30′, long. orient. 175° 50′, prope insulam "El Gran Cocal"; lect. die 25 Mar., 1841. Prope insulam "Mindoro"; lect. die 24 Jan., 1842.

24. Pontella argentea. — Caput discretum, subtriangulatum, fronte obtusum. Cephalothorax 5 (–6)-articulatus, posticè brevissimè acutus articulis tribus posticis subæquis. Oculi superiores remoti, inferiores subgrandes non elongati. Antennæ anticæ cephalothorace breviores, fere 90° divaricatæ et levissimè incurvatæ, 18 – 20-articulatæ, setis totis perbrevibus, duabus apicalibus subuncinatis. Styli caudales parce oblongi. [Viridescens, dorso argentea. Abdomen 3-articulatum.]

Long. $\frac{1}{12}''$. — *Hab.* in mari Atlantico, lat. aust. 40° 35′, long. occ. 60°, prope "Rio Negro." — Lect. die 24 Jan., 1839.

25. Pontella speciosa. — Caput discretum, subtriangulatum, fronte obtusum. Cephalothorax 5 – 7-articulatus, posticè acutus aut obtusiusculus. Oculi superiores remoti, inferiores mediocres. Antennæ anticæ cephalothoracis longitudine, fere rectæ, prope 110° divaricatæ, 21 – 22-articulatæ; setis brevibus, apicali anticâ et penultimâ posticâ longioribus, articulum paulo superantibus. Styli caudales oblongi. Antenna dextra *maris* pauci-articulata, articulo quinto latè ovato. Pes posticus dexter *maris* crassus, manu latâ apice truncatâ et obtusè dentatâ, pollice e basi manus producto, elongato, spiniformi, digito prælongo, incurvato. [*Maris* cephalothorax 6-articulatus, et abdomen 4-articulatum; color viridis, dorso argenteus. *Feminæ* cephalothorax 7-articulatus, segmento ultimo brevissimo; abdomen 3-articulatum; color ochreus, medio lætè ruber.]

Long. $\frac{1}{12}''$. — *Hab.* prope fretum Sundæ; lect. die 4 Mar., 1842.

26. Pontella princeps. — *Feminæ:* Caput discretum, subtriangulatum, fronte obtusiusculum. Cephalothorax 6-articulatum, posticè longè acutus, articulis tribus posticis subæquis. Oculi superiores remoti; inferiores mediocres parce elongati. Antennæ anticæ cephalothorace parce breviores, rectiusculæ, fermè 110° divaricatæ, setis brevibus, apicali anticâ longiore. Styli caudales perbreves. [Cyanea, dorso margaritacea. Abdomen 4-articulatum, distortum.]

Long. $\frac{1}{4}''$. — *Hab.* in mari Pacifico, prope insulam "Tongatabu"; lect. die 29 Mar., 1840.

27. Pontella fera. — Caput vix discretum, subtriangulatum, fronte rotundatum. Cephalothorax 6 – 7-articulatus, posticè obtusus aut obtusiusculus, segmento postico brevissimo. Oculi superiores remoti, inferiores grandes, non elongati. Antennæ anticæ vix cephalothoracis longitudine, fermè 21-articulatæ, 130° divaricatæ, setis prope basin sublongis, confertis, aliis brevibus, apicali anticâ et penultimâ posticâ articulo vix longiore. Styli caudales elongati, divaricati. Antenna antica dextra *maris* subteres 11 – 12-articulata, articulo secundo longo, tertio brevissimo, quarto sub quintum producto, proximo spinam inversam ferente. Pes posticus dexter *maris* tenuis, manu subcylindricâ, digito tenuissimo, ad apicem spatulato et concavo.

Long. $\frac{1}{12}''$. — *Hab.* in mari Pacifico, lat. aust. 11° – 12° 45′, long. occ. 170° – 171°; lect. diebus 1, 5 Feb., 1840.

Familia IV. CORYCÆIDÆ.

Oculi duo grandes plus minusve remoti, lenticulis duabus prolatis maximis, et corneis oblatis instar conspicillorum, constructi; quoque duo oculi connati minutissimi. *Antennæ anticæ* pauci-articulatæ, simplicissimæ. *Antennæ posticæ* simplicissimæ. *Pedes mandibulares maxillaresque* brevissimi. *Sacculi ovigeri* duo.

Genus I. CORYCÆUS.

Corpus crassum, anticè rotundatum. *Conspicilla* fronte affixa. *Antennæ posticæ* pedibus anticis majores. *Pedes antici* sexu vix dissimiles digito subuncinato tenuique confecti. *Abdomen* pauci-articulatum, appendicibus basi nullis, stylis caudæ styliformibus.

1. ANTENNÆ POSTICÆ MACRODACTYLÆ, DIGITO NON BREVIORE QUAM CARPUS.*

A. *Setæ caudales stylis valde breviores.* [*Cephalothorax posticè (ad segmentum tertium) acutus, segmento quarto minore.*]

1. CORYCÆUS GRACILIS. — Cephalothorax gracilis, ventre non carinato. Antennæ anticæ breviter setulosæ. Conspicilla fere contigua. Antennarum posticarum carpus digito brevior, setâ longâ, setulosâ. Abdomen uni-articulatum, apice subcylindrico fere triplo longius, basi angustum. Styli caudales abdomine breviores, setis brevissimis.

Long. $\frac{1}{30}''$. — *Hab.* in mari Atlantico, lat. bor. 1° 30′, long. occ. 18° 20′, et lat. aust. 2° 20′, long. occ. 20°.

2. CORYCÆUS DECURTATUS. — Cephalothorax ventre carinatus. Antennæ anticæ breviter setulosæ. Conspicilla fere contigua. Antennarum posticarum carpus digito brevior setâ nudâ elongatâ, etiam setâ alterâ setulosâ breviore. Abdomen basi crassum, apice subcylindrico fere quadruplo longius. Styli caudales vix dimidii abdominis longitudine, setis brevissimis.

Hab. in mari Pacifico, prope insulam "Duke of Clarence."

3. CORYCÆUS DEPLUMATUS. — Conspicilla remotiuscula. Antennæ anticæ brevissimè setulosæ, 7-articulatæ. Antennarum posticarum car-

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* *Carpus* est articulus elongatus antennarum posticarum secundus (aut primus et secundus simul sumti). *Digitus* articulis tertio quartoque compositus, plus minusve discretis. Carpus setâ longâ sive nudâ sive setulosâ ad basin ornatus, et sæpe unâ duabusve lateralibus aut apicalibus.

pus digito brevior, setâ setulosâ longâ, et aliâ nudâ. Abdomen uniarticulatum, tenue. Styli caudales vix dimidii abdominis longitudine ; setis plus dimidio brevioribus.

Hab. in mari Atlantico, lat. bor. 9° 20′, long. occ. 24° 15′.

4. Corycæus varius. — Cephalothorax crassus. Conspicilla remotiuscula. Antennæ anticæ longè setulosæ. Antennarum posticarum carpus digito brevior, setâ longâ, nudâ. Abdomen 2-articulatum, segmento secundo cylindrico, breviore quam primum. Styli caudales abdomine paulo breviores, setis dimidio brevioribus.

Long. $\frac{1}{20}$″. — *Hab.* in mari Atlantico, lat. bor. 7° 25′, long. occ. 22° ; lat. aust. 1° – 7°, long. occ. 18° – 21°. In mari Pacifico, lat. aust. 15° 30′, long. occ. 138° 30′ ; lat. aust. 33°, long. orient. 153° 30′, prope Australiam ; quoque prope insulas "Ladrones."

5. Corycæus longistylis. — Cephalothorax crassus. Conspicilla remotiuscula. Antennæ anticæ longè setulosæ. Antennarum posticarum carpus digito vix brevior, ad apicem internum dentiformis, nudus et acutus, setâ basali longâ, nudâ ; digito setam nudam ad basin ferente. Abdomen uni-articulatum, dimidio apicali cylindrico. Styli caudales tenues, abdomine valde longiores, setis perbrevibus.

Long. $\frac{1}{10}$″. — *Hab.* in mari Sinensi.

B. *Setæ caudales stylis non valde breviores, sæpe longiores.*

* Cephalothorax posticè obtusus.

6. Corycæus obtusus. — Conspicilla lata. Antennæ anticæ tenues, setis longiusculis. Antennarum posticarum carpus digito non brevior, setâ longâ nudâ. Abdomen 2-articulatum, subtus ad basin apiculatum, segmento secundo dimidium primi longitudine superante. Styli caudales dimidii abdominis longitudine, setis stylo parce longioribus.

Long. $\frac{1}{30}$″. — *Hab.* in mari Pacifico, prope insulam "El Gran Cocal."

† Cephalothorax posticè acutus.

7. Corycæus crassiusculus. — Cephalothorax crassiusculus, segmento quarto posticè subacuto. Conspicilla contigua. Antennarum posticarum carpus digito vix brevior, setâ nudâ. Abdomen uni-articulatum, apice subcylindrico fere dimidio breviore quam pars basalis elliptica. Styli caudales dimidium abdominis longitudine superantes, setis paulo longioribus.

Long. $\frac{1}{20}$″. — *Hab.* in mari "Sulu," prope insulam "Panay."

8. Corycæus laticeps. — Cephalothorax crassus, segmento quarto breviter acuto. Conspicilla remotiuscula. Antennæ anticæ 7-articulatæ, setis dimidio brevioribus. Antennarum posticarum carpus digito paulo brevior, setâ longâ, nudâ. Abdomen 2-articulatum; segmento secundo cylindrico, dimidio breviore. Styli caudales dimidio abdominis breviores, setis parce longioribus.

Long. $\frac{1}{20}''$. — *Hab.* in mari Atlantico, lat. bor. 4° – 5°, long. occ. 19° – 22°, et lat. aust. 0° 15′ – 1°, long. occ. 18° 30′, et 31°.

9. Corycæus vitreus. — Cephalothorax crassus, segmento quarto brevissimè acuto. Conspicilla remotiuscula. Antennæ anticæ longè setulosæ. Antennarum posticarum carpus digito vix brevior, setâ nudâ, longâ. Abdomen 2-articulatum, apice cylindrico brevi. Styli caudales dimidii abdominis longitudine, setis stylos paulum superantibus.

Long. $\frac{1}{15}''$. — *Hab.* in mari Pacifico, lat. aust. 18°, long. occ. 124° 30′.

10. Corycæus agilis. — Cephalothorax crassiusculus, segmento quarto subrectangulato. Conspicilla remotiuscula. Antennæ anticæ breviter setulosæ. Antennarum posticarum carpus digito paulo brevior, setâ longâ, nudâ. Abdomen 2-articulatum, crassum, segmento secundo tenuiter subcylindrico, paulo breviore quam primum. Styli caudales tenuissimi, dimidio abdominis longiores, setâ paulo breviore.

Long. $\frac{1}{30}''$. — *Hab.* in mari Pacifico, prope insulam "Tongatabu."

11. Corycæus orientalis. — Cephalothorax crassus, segmento quarto rectangulato, subacuto. Conspicilla remota. Antennæ anticæ breviter setulosæ. Antennarum posticarum carpus digito paulo longior, setâ longâ, nudâ, digito articulis duabus subæquis composito. Abdomen 2-articulatum, ad basin infra rectangulatum. Styli caudales breves, setis vix longioribus.

Long. $\frac{1}{20}''$. — *Hab.* in mari "Sulu," prope insulam "Panay."

2. Antennæ Posticæ microdactylæ, digitus carpo brevior.

A. *Seta carpi antennarum posticarum nuda.*

* Styli caudales abdomine non breviores.

Digitus carpo paulo brevior.

12. Corycæus lautus. — Cephalothorax ad segmentum quartum obtusus. Conspicilla remotiuscula. Antennæ anticæ longissimè setulosæ. Antennarum posticarum carpus digito paulo longior, setâ longâ, nudâ, digito subæquè 2-articulato, et ad basin setam nudam longam fe-

rente. Abdomen 2-articulatum, segmentis fere æquis. Styli caudales tenuissimi, abdomine valde longiores, setis perbrevibus.

Long. $\frac{1}{15}''$. — *Hab.* in mari Pacifico, prope insulas "Kingsmill."

Digitus carpo valde brevior, uncinatus.

13. Corycæus speciosus. — Cephalothorax ad segmentum quartum longè acutus. Conspicilla non contigua. Antennæ anticæ setis longissimæ. Abdomen 2-articulatum, articulo primo crasso, secundo cylindrico, dimidio breviore. Styli caudales abdomine longiores, divaricati, setis brevibus. [Pedes biremes 4 posteriores utrinque protensi.]

Long. $\frac{1}{16}''$. — *Hab.* in mari Atlantico, lat. bor. 5° – 7°, long. occ. 21° – 22°.

14. Corycæus remiger. — Cephalothorax ad segmentum quartum longè acutus. Conspicilla remota, parvula. Antennæ anticæ setis longissimæ. Abdomen 3-articulatum, segmento ultimo subito angustiore, cylindrico. Styli caudales fermè abdominis longitudine, divaricatæ, setis stylo paulo brevioribus. (*C. specioso* pedes biremes similis.)

Long. $\frac{1}{15}''$. — *Hab.* in mari Atlantico, lat. aust. 11°, long. occ. 29°.

† Styli caudales abdomine breviores. [Cephalothorax posticè (ad segmentum tertium) longè acutus.]

15. Corycæus latus. — Cephalothorax crassus, segmento quarto posticè longè acuto. Conspicilla remota. Antennæ anticæ mediocriter setigeræ. Abdomen crassum, posticè attenuatum, segmento ultimo subcylindrico. Styli caudales dimidio abdominis breviores, divaricati, setis paulo longioribus.

Long. $\frac{1}{24}''$. — *Hab.* in mari Atlantico, lat. bor. 3° 45′ – 4° 20′, long. occ. 19° 30′ – 18° 30′; etiam lat. aust. 6° 20′, long. occ. 24°.

16. Corycæus venustus. — Cephalothorax mediocris, segmento quarto breviter acuto. Conspicilla remotiuscula. Antennæ anticæ longè setigeræ. Antennarum posticarum carpus digito fere duplo longior, apice interno dentiformi, setâ longâ, nudâ, digito subæque 2-articulato. Abdomen 2-articulatum, segmento primo paulo latiore et longiore. Styli caudales abdomine paulo breviores, divaricatæ, setis abdominis longitudine.

Long. $\frac{1}{16}''$. — *Hab.* in mari Pacifico, prope insulas "Kingsmill."

B. *Seta carpi antennarum posticarum setulosa. [Cephalothorax posticè longè acutus.]*

17. Corycæus pellucidus. — Cephalothorax gracilis, ventre max-

imè carinato. Conspicilla fere contigua. Antennæ anticæ 7-articulatæ, setis fere brevibus. Antennarum posticarum carpus ad apicem internum apiculatus, digito brevi. Abdomen 1-articulatum, apice obliquè truncato. Styli caudales dimidio abdominis longiores, setis vix majoribus.

Long. $\frac{1}{25}''$. — *Hab.* in mari Atlantico, lat. bor. 4° – 7°, long. occ. 19° 30′ – 21° 30′; quoque lat. aust. 2° 20′, long. occ. 20°.

18. Corycæus concinnus. — *C. pellucido* similis. Cephalothorax paulo crassior; abdomen gracilius; styli breviores, dimidium abdominis longitudine non superantes. Antennæ anticæ 3-articulatæ.

Long. $\frac{1}{25}''$. — *Hab.* in mari Pacifico, lat. aust. 15° 35′, long. occ. 138° 30′; quoque leucas 80 ab insulâ "Tongatabu" versus austrum.

19. Corycæus productus. — Antennæ anticæ 5 – 7-articulatæ, brevissimè setulosæ. Antennarum posticarum carpus ad apicem acutus, et digitus brevis, 3-articulatus. Abdomen elongatum, ad apicem oblique non truncatum. Styli caudales dimidio breviores, setis stylo paulo longioribus.

Long. $\frac{1}{30}''$. — *Hab.* in mari Atlantico, lat. bor. 8° 35′, long. occ. 23° 40′.

20. Corycæus longicaudatus. — Cephalothorax mediocris, segmento quarto longè acuto. Conspicilla fere contigua. Antennæ anticæ 7-articulatæ, setis longiusculis, antennâ brevioribus. Antennarum posticarum carpus ad apicem internum acutus, et digitus parvulus, 3-articulatus. Abdomen mediocre, subellipticum. Styli caudales longiores, setis dimidio brevioribus.

Long. $\frac{1}{18}''$. — *Hab.* in mari Atlantico, lat. bor. 5° – 0° 50′, long. occ. 18° – 20°; quoque lat. aust. 2° 20′, long. occ. 20°.

Genus II. ANTARIA.

Corpus crassum, anticè rotundatum. *Conspicilla* fronte affixa. *Antennæ posticæ* parvæ, ad apicem breviter setigeræ, pedibus anticis (ct. vii.) non majores, carpo posticè angulato. *Pedes antici* sexu vix dissimiles (?), digito tenui subuncinato. *Abdomen* pauci-articulatum. [Cephalothorax posticè obtusus.]

1. Antaria crassimana. — Pedes antici pervalidi, antennis posticis valde majores, articulo secundo abdomen longitudine fere æquante. Abdomen 3-articulatum, segmentis primo tertioque perbrevibus. Styli caudales abdomine triplo et setæ duplo breviores.

Long. $\frac{1}{30}''$. — *Hab.* in mari Atlantico, lat. bor. 1°, long. aust. 18°.

2. Antaria gracilis. — Conspicilla remota. Pedes antici mediocres, antennis posticis paululo majores. Abdomen sensim attenuatum. Styli caudales abdomine quadruplo breviores, setis dimidio abdominis longioribus.

Long. $\frac{1}{20}''$. — *Hab.* in mari Atlantico, lat. bor. 5° – 7°, long. occ. 21° – 22° ; lat. aust. 2° 20′, long. occ. 20°.

3. Antaria obtusa. — Conspicilla remota, parvula. Pedes antici parvuli, antennis posticis paululo majores. Abdomen sensim attenuatum, apice obsoletè 3-articulatum. Styli caudales dimidio abdominis paulo breviores, setis longiores. Cephalothorax posticè rotundatus.

Long. $\frac{1}{20}''$. — *Hab.* in mari "Sulu," prope insulam "Panay."

Genus III. COPILIA.

Corpus depressum, fronte latè quadratum, et conspicilla ad angulos anticos gerens. *Antennæ posticæ* digitiformes, digito elongato, subulato. *Abdomen* pauci-articulatum appendicibus ad basin nullis.

1. Copilia mirabilis. — Cephalothorax fronte latus, parce excavatus posticè paulo latior, segmentis posticis latere obtusis, posticè ad apicem dorsalem spinigero. Antennæ posticæ ad articulum primum setulosæ, digito longo. Abdomen tenue, cephalothoracis dimidio brevius, obsoletè 5-articulatum. Styli abdomine longiores, tenuissimi.

Long. $\frac{1}{16}''$. — *Hab.* in mari Pacifico, prope insulas "Kingsmill."

2. Copilia quadrata. — Cephalothorax anticè bene quadratus, fronte parce excavatus, segmentis latere obtusis, postico brevissimo. Abdomen 4-articulatum, tenue, segmentis secundo tertioque non longioribus quam primum, quarto dimidium abdominis longitudine superante et lateribus parce excavato. Styli abdomine longiores, tenuissimi.

Hab. in mari Pacifico, lat. aust. 15° 20′, long. occ. 148° ; quoque lat. bor., prope long. orient. 165°.

Genus IV. SAPPHIRINA.

Corpus depressum. *Sexus* antennas posticas stylosque caudales similes, et abdomen, pedesque antici (*vel* maxillipedes, ct. vii.) dissimiles. *Antennæ posticæ* pediformes, digito tenui, 2-articulato, ad apicem unguiculato. *Abdomen feminæ* 5 – 6-articulatum, thorace subito angustius, appendices breves ad basin latere gerens ; *maris* 4 – 5-articulatum, thorace subito non angustius, appendicibus nullis.

Pedes antici maris digitum elongati, *feminæ* breves. *Styli* caudales laminati. — *Mares* sæpe lætè opalini aut fulgidè metallini, interdum cærulei. *Feminæ* sæpius incoloratæ, plus minusve pellucidæ; interdum opacæ et azuleæ.

1. *Conspicilla conjuncta.*

1. Sapphirina iris. — Antennæ posticæ abbreviatæ, digito dimidii carpi longitudine. Lamellæ caudales tenuiter falciformes, divaricati; setis tribus, duabus apicalibus dimidio styli longioribus, alterâ externâ. — *Feminæ:* Corpus gracillimum valde elongatum (latitudine maximâ plus quintuplo longius). Conspicilla fronte insita. Abdomen 6-articulatum, segmento primo sequentibus vix angustiore. *Maris:* Corpus lineari-ellipticum, anticè rotundatum. Conspicilla inferiora, fronte remotiuscula.

Long. $\frac{1}{3}''$. — *Hab.* in mari Pacifico, lat. aust. 41°, long. occ. 76° 24′.

2. Sapphirina angusta. — Digitus antennarum posticarum carpo valde (non duplo) brevior. Lamellæ caudales elongatæ, subovatæ, ad apicem internum prominulo, subacuto; setis quatuor, duabus apicalibus dimidio lamellæ brevioribus, aliis duabus externis brevioribus. — *Feminæ:* Corpus valde elongatum (latitudine maximâ fere quadruplo longius). Conspicilla fronte insita. Abdomen 6-articulatum, segmento primo angustiore, tertio, quarto, quintoque lunatis et latus acutis, primo secundoque fere æquis.

Long. $\frac{1}{8}''$. — *Hab.* in mari Pacifico, lat. aust. 43°, long. occ. 78° 45′; etiam ad syrtas "Lagullas," lat. aust. 35° 50′, long. orient. 23°.

3. Sapphirina elongata. — Digitus antennarum posticarum tenuis, dimidio brevior quam carpus. Lamellæ caudales latæ, breviter ovatæ, apice interno vix prominulo, setis quatuor, totis dimidio lamellæ breviores. — *Feminæ:* Corpus angustè elongatum, valde convexum. Conspicilla fronte insita. Abdomen 5-articulatum, segmento primo parvulo, secundo majore sed valde minore quam sequens, sublunato.

Long. $\frac{1}{10}''$. — *Hab.* in mari Pacifico, lat. bor. 15°, long. orient. 179°.

4. Sapphirina metallina. — Lamellæ caudales fere rectangulatæ, apice subtruncatæ, setis quatuor apicalibus subæquis, parcè brevioribus quam lamellæ. — *Maris:* Corpus valde depressum, angustato-ellipticum, 9-articulatum, segmento ultimo tecto, primo oblongo, quarto dimidio breviore quam quintum.

Long. $\frac{1}{10}''$. — *Hab.* in mari Pacifico, prope insulas "Kingsmill."

5. Sapphirina coruscans. — Digitus antennarum posticarum paulo

brevior quam carpus, tenuis, unguiculo elongato. Lamellæ caudales subovatæ, ad apicem rotundatæ, apice interno setam brevem gerente, setis aliis quatuor, totis brevibus (lamellâ fere quadruplo brevioribus). — *Maris :* Corpus depressum, elongato-ovatum, posticè angustatum, segmento primo (fere duplice) parce oblongo, aliis segmentis fere similibus. Conspicilla fronte insita, prominentia.

Long. $\frac{1}{16}''$. — *Hab.* in mari Pacifico, lat. aust. 18° 10′, long. occ. 125° 30′.

6. SAPPHIRINA INÆQUALIS. — Digitus antennarum posticarum carpo non brevior, tenuis, unguiculo brevi. Lamellæ caudales oblongæ, subovatæ, apice interno prominulo, subacuto, setis quatuor, setis dimidio lamellæ non longioribus. — *Feminæ :* Corpus longè ovatum, segmentis cephalothoracis tribus ultimis dissimilibus, segmento ultimo breviore et latere acuto, penultimo obtuso. Conspicilla fronte insita. Abdomen 6-articulatum, segmento primo fere obsoleto aut tecto, secundo posticè acuto.

Long. $\frac{1}{12}''$. — *Hab.* in mari Pacifico, lat. aust. 43°, long. occ. 78° 45′.

7. SAPPHIRINA OVATA. — Digitus antennarum posticarum fermè longitudine carpi, articulis duabus digiti subæquis. Lamellæ caudales graciles, lanceolatæ, parce divaricatæ ; setis 4 – 5, unâ internâ, unâ aut duabus apicalibus, et aliis duabus externis, totis dimidio lamellæ valde brevioribus. — *Feminæ :* Corpus valde depressum. Cephalothorax ovatus, segmento antico paulo oblongo, segmentis duobus ultimis latere rotundatis, ultimo angustiore. Conspicilla fronte insita. Abdomen elongato-ellipticum, 5-articulatum, segmento primo non angustiore. — Rubescens.

Long. $\frac{1}{12}''$. — *Hab.* in freto " Balabac," prope insulam " Borneo."

8. SAPPHIRINA SPLENDENS. — Digitus antennarum posticarum tenuis, carpo vix brevior. Lamellæ caudales ovato-rotundatæ, apice interno acuto ; setis quatuor, duabus apicalibus dimidio lamellæ non longioribus, aliis externis. — *Maris :* Corpus valde depressum, ovatum. Conspicilla fronte insita. Segmento primo (vix duplice) transverso, aliis longitudine subæquis, latere obtusis.

Long. $\frac{1}{15}''$. — *Hab.* in mari Pacifico, prope insulam " Assumption," lat. bor. 19° 30′, long. orient. 144° 30′.

9. SAPPHIRINA OVALIS. — Digitus antennarum posticarum crassus, carpo fere longior, articulis digiti valde inæquis, unguiculo dimidium digiti longitudine æquante. Lamellæ caudales ovatæ, setis quinque, unâ

internâ, duabus apicalibus, et aliis externis, totis paulo brevioribus quam lamellæ. — *Feminæ :* Corpus valde convexum. Cephalothorax ellipticus, 5-articulatus, segmento antico non oblongo, postico parvo. Conspicilla fronte insita. Abdomen 5-articulatum, segmento primo minore, latere truncato, tertio quartoque lunatis. — Opaca, azulea.

Hab. in mari Pacifico, prope insulam "Tongatabu," versus Austrum.

10. **Sapphirina detonsa.** — Digitus antennarum posticarum tenuis, carpo paulo brevior, unguiculo dimidii digiti longitudine. Lamellæ caudales approximatæ, subovatæ, latitudine plus duplo longiores, setis brevissimis (obsolescentibus). — *Feminæ :* Corpus valde convexum. Cephalothorax ellipticus, 5-articulatus, segmento primo non oblongo, aliis latera obtusis. Conspicilla fronte insita. Abdomen 5-articulatum, segmento primo fere obsoleto aut tecto, secundo latere obtuso, tertio quartoque lunatis. — Translucens, brunnescens.

Long. $\frac{1}{15}''$. — *Hab.* in mari Pacifico, lat. aust. 15°, long. occ. 138° 45′.

11. **Sapphirina indigotica.** — Digitus antennarum posticarum tenuis, fere carpi longitudine, et unguiculo fere dimidii digiti. Lamellæ caudales subovatæ, apice interno vix prominulo, setis quatuor, duabus apicalibus, aliis externis, totis dimidio lamellæ vix brevioribus. — *Feminæ :* Corpus valde convexum. Cephalothorax ellipticus. Conspicilla fronte insita. Abdomen 6-articulatum, segmento primo parvulo, tertio, quarto, quintoque lunatis. — Opaca, et azulea.

Long. $\frac{1}{16}''$. — *Hab.* in mari Pacifico, lat. bor. 28°, long. orient. 177°.

12. **Sapphirina orientalis.** — Digitus antennarum posticarum tenuis, fermè carpi longitudine, unguiculo minus dimidio digiti. Lamellæ caudales breviter ovatæ, prope apicem internum dente acuto armatæ, setis quatuor, duabus apicalibus, aliis externis, totis brevibus, vix dimidii lamellæ longitudine. — *Maris :* Corpus valde depressum, subovatum, 10-articulatum, segmento antico latiore et paulo transverso, aliis sensim angustioribus. Conspicilla fronte insita. — *Feminæ* (?) : Corpus convexum. Cephalothorax ellipticus, 5-articulatus, segmento antico non transverso, postico ad latus truncato, angulis posticis acutis. Conspicilla fronte insita. Abdomen 6-articulatum, segmento primo minore, lateribus truncatis, secundo lateribus rotundatis, tribus sequentibus lunatis. — *Maris* color, opalinus ; *feminæ* indigoticus, opacus.

Long. $\frac{1}{10}''$. — *Hab.* in mari "Sulu."

2. *Conspicilla non contigua.*

13. SAPPHIRINA OVATO-LANCEOLATA. — Digitus antennarum posticarum dimidio carpi paulo longior, articulis duabus digiti valde inæquis. Lamellæ caudales latitudine duplo longiores, non divaricatæ, setis quinque, totis brevibus, unâ brevissimâ ad apicem internum insitâ. — *Maris :* Corpus ovato-lanceolatum, 10-articulatum, segmento antico vix oblongo, tribus penultimis lunatis et latera subacutis aut obtusis. Conspicilla subremota, inferiora, et fronte remota. Splendidè opalina. *Long.* $\frac{1}{7}''$. — *Feminæ :* Corpus ovato-lanceolatum, abdomine (articulo primo brevissimo excluso) vix angustiore. Cephalothorax 4-articulatus, segmento antico fere duplice, aliis inter sese similibus, latere obtusis. Conspicilla remotiuscula, fronte insita. Abdominis segmenta secundum tertium quartumque latè sublunata ea latere subacuta. — Vix diaphana. — *Long.* $\frac{1}{16}''$.

Hab. in mari Atlantico, prope " Rio de Janeiro "; quoque lat. aust. 23°, long. occ. 41°.

14. SAPPHIRINA GEMMA. — Digitus antennarum posticarum carpo parce brevior, tenuis, articulis duabus digiti valde inæquis, unguiculo brevi. Lamellæ caudales subellipticæ, latitudine duplo longiores, ad apicem internum minutè apiculato, setis quatuor, brevibus, duabus apicalibus, aliis externis. — *Feminæ :* Corpus gracillimum, elongatum. Cephalothorax 5-articulatus articulatione primâ fere obsoletâ, segmento antico parce oblongo, posticis inter sese similibus, sensim minoribus. Abdomen valde angustius, 6-articulatum, segmentis primo secundoque subæquis, sequentibus vix lunatis. Conspicilla remotiuscula, inferiora, prope frontem insita. — *Maris :* Corpus oblongo-subellipticum 10-articulatum, segmento antico paulo transverso, posticis ad latis non acutis. Conspicilla remotiuscula, inferiora et fronte remota. — Color *maris* opalinus et flammeus ; *feminæ* nullus, sacculorum pallidè cyaneus.

Long. $\frac{1}{8}''$. — *Hab.* in mari Australis, ad syrtas " Lagullas." — An *Sapphirinæ indicatori* pertinet ?

15. SAPPHIRINA BELLA. — Digitus antennarum posticarum tenuis, fermè carpi longitudine, articulis digiti fere æquis, unguiculo parvulo. Lamellæ caudales divaricatæ, angustæ, lanceolatæ, setis quatuor, duabus apicalibus, aliis externis, totis perbrevibus. — *Maris :* Corpus ovatum, 9-articulatum, segmento ultimo tecto, antico parce oblongo, ad latus totis obtusis. Conspicilla parvula, remotiuscula, inferiora, prope frontem insita. — Splendidè versicolor.

Long. $\frac{1}{15}''$. — *Hab.* in mari Pacifico, prope insulas " Kingsmill."

16. Sapphirina opalina. — Digitus antennarum posticarum tenuis, carpo fere longior, unguiculo brevi. Lamellæ caudales suborbiculatæ, apice interno producto, acuto, setis dimidio lamellæ vix longioribus. — *Maris :* Corpus ovatum, 10-articulatum, articulatione primâ fere obsoletâ, segmento postico tecto, quatuor penultimis latere ad angulos posticos acutis. Conspicilla remotiuscula, fronte insita. — Splendidè opalina.

Long. $\frac{1}{8}''$. — *Hab.* in mari Atlantico, lat. bor. 1° – 0°, long. occ. 17° – 18° ; quoque lat. aust. 4° 30′, long. occ. 25°.

17. Sapphirina versicolor. — Digitus antennarum posticarum tenuis, carpo vix longior, unguiculo longiusculo (dimidium digiti longitudine fere æquante). Lamellæ caudales latæ, latitudine breviores, apice interno producto et acuto, setis quatuor, brevissimis. — *Maris :* Corpus ovatum, 10-articulatum, segmento antico transverso, semicirculari, aliis longitudine subæquis, quatuor penultimis ad latera minutè acutis. Conspicilla remotiuscula, fronte insita. — Opalina. — *S. opalinæ* affinis.

Long. $\frac{1}{10}''$. — *Hab.* in mari Atlantico, prope "Rio de Janeiro," lat. aust. 24°, long. occ. 43°.

18. Sapphirina tenella. — Digitus antennarum posticarum tenuis, carpo longior, unguiculo parvulo. Lamellæ caudales latitudine duplo longiores, setis dimidio lamellæ valde breviores, unâ ad apicem internum fere obsoletâ. — *Feminæ :* Cephalothorax ovatus, 5-articulatus, articulatione primâ fere obsoletâ, segmento antico non transverso, posticis inter sese similibus, angulo postico subacuto. Abdomen angustum, 6-articulatum, segmento primo brevissimo, secundo latere obtuso, tribus sequentibus lunatis. Conspicilla remotiuscula, fronte insita. — *Maris :* Corpus longe ovatum, 10-articulatum, posticè segmentis sensim minoribus, segmento antico semicirculari, lateribus obtusis. Conspicilla remotiuscula, fronte insita. — *Maris* corpus diaphanum, pulchrè versicolor ; *feminæ* subdiaphanum, non coloratum.

Long. $\frac{1}{12}''$ – $\frac{1}{15}''$. — *Hab.* in mari Atlantico, lat. aust. 20° – 23°, long. occ. 38° 45′ – 41° ; quoque lat. aust. $4\frac{1}{2}$°, long. occ. 25° ; quoque lat. aust. 24°, long. occ. 43°. — An *S. fulgenti* (M. Edwardsii) pertinet ?

19. Sapphirina obesa. — Lamellæ caudales latæ, subellipticæ latitudine non duplo longiores, setis brevissimis, fere obsoletis, unâ ad apicem internum vix dispiciendâ. — *Feminæ :* Cephalothorax latè subovatus, convexus 5-articulatus, segmento antico transverso, ultimis duobus duplo brevioribus quam tertio, quarto ad angulos rotundato, quinto ad angulos subacuto. Abdomen 5-articulatum, segmento primo brevissi-

mo, tribus sequentibus lunatis. Conspicilla remotiuscula, fronte insita. — Brunnescens.

Long. $\frac{1}{16}''$. — *Hab.* in mari Pacifico, prope insulas "Kingsmill."

20. Sapphirina obtusa. — Lamellæ caudales elongatæ, non divaricatæ, setis dimidio lamellæ valde brevioribus. — *Feminæ :* Cephalothorax convexus, 4-articulatus, ad frontem subtruncatus, segmento antico oblongo, lateribus fere parallelis, angulis posticis rotundatis, segmentis aliis dissimilibus, secundo ad latus truncato, tertio rotundato, quarto (vel ultimo) medium ad latus angulato. Abdomen angustum, 5-articulatum, segmento primo parvulo, tribus sequentibus sublunatis. — Rubescens.

Long. $\frac{1}{15}''$. — *Hab.* in mari Pacifico, lat. aust. 43°, long. occ. 78° 45′.

Familia V. MIRACIDÆ.

Oculi duo conspicillis maximis constructi. *Antennæ posticæ* ad apicem setigeræ. *Pedes mandibulares maxillaresque* brevissimi. *Abdomen* feminæ (an *maris* quoque ?) 6-articulatum. *Sacculus ovigerus* unicus.

Genus MIRACIA.

Corpus elongatum, non depressum, ad frontem duas appendices falciformes subtus gerens. *Antennæ anticæ* appendiculatæ, flexiles et non geniculantes. *Pedes antici* (ct. vii.) mediocres, uni-unguiculati ; *pedes* duo sequentes biremes, lateraliter porrecti. *Pedes abdominis* longè setigeri. *Setæ caudales* elongatæ. — *Setellæ* affinis, sed conspicilla oculorum diversæ.

1. Miracia efferata. — Corpus 10-articulatum, segmento antico valde latiore, aliis sensim attenuatis. Conspicilla fronte insita, maxima, valde prominentia, contigua. Antennæ anticæ mediocres, 7-articulatæ, articulis tertio quinto septimoque brevibus. Styli caudales oblongi, setis duplo longioribus. — Cyanea.

Long. $\frac{1}{16}''$. — *Hab.* in mari Atlantico, lat. bor. 4° – 7°, long. occ. 20° – 21° 30′ ; quoque lat. aust. 4° 30′, long. occ. 25°.

2. Miracia gracilis. — Corpus gracile, sensim posticè attenuatum, 10-articulatum, segmento antico non latiore. Conspicilla maxima, paulo prominentia, fronte insita. Antennæ anticæ tenuissimæ, articulis secundo, quarto, duobusque ultimis brevibus. Styli caudales oblongi, setis quadruplo longioribus, fere corporis longitudine. — Cyanea et viridis.

Long. $\frac{1}{16}''$. — *Hab.* in mari Pacifico, lat. aust. 32° 24′, long. orient. 177° ; quoque prope insulam "Sunday."

Tribus 2. DAPHNIACEA (vel Cladocera).

Corpus testâ plerumque tectum, capite antennisque posticis sæpius exclusis. *Pedes* plures natatorii. *Antennæ anticæ* sæpe obsoletæ, raro elongatæ. *Oculus* compositus. [Membra tota cephalothoracis mandibularia, maxillaria, pediformiaque 12 – 16.]

Tribûs hujus familiæ sunt : —

1. Penilidæ. — Pedes duodecim. Antennæ anticæ obsolescentes.

2. Daphnidæ. — Pedes decem. Antennæ anticæ sive obsoletæ sive uni-articulatæ.

3. Bosminidæ. — Pedes decem. Antennæ anticæ elongatæ, multi-articulatæ.

4. Polyphemidæ. — Pedes octo. Antennæ anticæ obsolescentes.

Familia I. PENILIDÆ.

Genus PENILIA. (*D.*)

Caput discretum, longe rostratum. *Antennæ posticæ* grandes, ramis duobus 2-articulatis. *Abdomen* non inflexum, stylis duobus corneis confectum.

1. Penilia avirostris. — Testa dorso valde tumida, posticè latè bicuspidata et ad medium profondè excavata, marginibus infero posticoque per denticulos eleganter armata. Setæ appendicium abdominis dorsalium stylis caudalibus breviores.

Long. $\frac{1}{20}''$. — *Hab.* in porto "Rio Janeiro." — Lect. die 24 Dec., 1838.

2. Penilia orientalis. — Testa dorso tumida, posticè latè bicuspidata, ad medium paulo excavata, marginibus infero posticoque per denticulos eleganter armata. Setæ appendicium abdominis dorsalium stylis caudalibus fere duplo longiores.

Long. $\frac{1}{16}''$. — *Hab.* prope fretum "Sunda." — Lect. die 5 Mar., 1842.

Familia II. DAPHNIDÆ.

Genus I. DAPHNIA.

Abdomen inflexum. *Antennæ anticæ* obsolescentes. *Antennæ posticæ* birameæ, ramis 3 – 4-articulatis. *Intestina* non convoluta.

1. Daphnia textilis. — Valde tumida, subglobosa, paulo oblonga,

post medium paulo latior, posticè breviter subtriangulata, obtusa. Caput breve, brevissimè acutèque rostratum, *supernè visum* breviter subtriangulatum, obtusum. Rami antennarum valde inæqui, tri-articulati. Testa reticulata areolis bene hexagonis.

Hab. in stagnis prope portum "Sandal wood" ad insulam "Vanua Lebu" in archipelago "Viti."

2. Daphnia australiensis. — Valde tumida, paulo oblonga, capite per constrictionem vix discreto; post medium altior, posticè subtriangulata, obtusa, dorso postico subtilissimè denticulato. Caput breve, *supernè visum* triangulatum, obtusum. Rami antennarum posticarum subæqui, setis longiusculis. Testa reticulata, areolis longè angustissimèque linearibus, obliquis, prope marginem valde latioribus.

Hab. in stagnis prope urbem "Sydney" Novi-Hollandiæ.

3. Daphnia macrura. — Gracilis, elongata, testâ posticè aculeato-productâ, aculeo tenui, paulo breviore quam corpus. Caput grande, corpore non humilius, supra non discretum infra nec rostratum; fronte *latere visâ* rotundatâ, *supernè visâ* bene acutâ. Corpus ad margines dorsales infero-posticosque et aculeus subtilissimè denticulati.

Hab. in stagnis prope urbem "Sydney" Novi-Hollandiæ.

Genus II. SIDA.

Abdomen rectum. *Antennæ anticæ* fere obsoletæ. *Antennæ posticæ* birameæ, ramo uno 2-articulato. *Intestina* non convoluta.

Sida angusta. — Angusto-oblonga, posticè parce altior et rotundato-truncata, capite valde discreto, fere oblongo, paulo humiliore quam corpus, fronte obtusâ. Abdomen testâ fere omnino tectum. Antennæ anticæ fere corporis longitudine, ramis basi brevioribus, 2 et 3-articulatis, uno ramo setis paucis ciliato.

Hab. in stagnis ad insulam "Vanua Lebu."

Genus III. LYNCEUS.

Abdomen inflexum. *Intestina* convoluta. *Antennæ anticæ* fere obsoletæ. *Antennæ posticæ* parvæ.

Lynceus latifrons. — Valde tumidus; *latere visus* rotundatus, capite indiscreto, brevissimo, rostrato, rostro gracili, acuto, ad corpus strictè appresso; *supernè visus*, fronte latissimè truncatâ parce angustiore quam corpus, latere postico breviter triangulato et obtuso.

Hab. in stagnis ad insulam "Vanua Lebu."

Familia IV. POLYPHEMIDÆ.

Pedes octo. Oculus maximus.

Genus POLYPHEMUS.

Caput discretum, magnum. *Antennæ* birameæ, validæ.

Polyphemus brevicaudis. — Testa posticè tumida rotundata. Caput oblongum (paulo brevius quam testa reliqua), conoideum, anticè latius et globulare. Rami antennarum subæqui 3-articulati, parce setigeri. Pedes crassi. Abdomen non inflexum, breve, crassum, parce exsertum, furcatum, ad apicem acutum.

Long. $\frac{1}{30}''$. — *Hab.* in mari Atlantico, lat. aust. 41°, long. occ. 62°. — Lect. die 25 Jan., 1839.

Tribus 3. CYPRIDACEA (vel Ostracoda).

Corpus testâ bivalvi omnino tectum, posticè incurvatum, capite antennisque nunquam exclusis. *Pedes* nulli biremes nec natatorii. *Oculi* vel simplices vel compositi. *Antennæ* quatuor. [Membra cephalothoracis mandibularia, maxillaria, pediformiaque numero decem.]

Genus I. CYPRIS. (*Müller.*)

Testa integra, ad frontem nec perforata nec incisa. *Oculus* unicus. *Antennæ anticæ* setigeræ, subnatatoriæ. *Antennæ posticæ* subpediformes, setigeræ. *Pedes mandibulares* 3 – 5-articulati. *Maxillæ* quatuor, breves. *Pedes* quatuor, duo uncinis longi confecti, duo sequentes graciles, 4 – 5-articulati, ad ova pertinentes.

1. Cypris speciosa. — Oblonga, subovata, anticè angustior, subtus fere recta, vix excavata, alioque bene arcuata, altitudine latior et plus duplo longior; ad marginem anticum pubescens, posticum breviter ciliata. Flava et lætè viridis, areis flavis paucis imperfectis viridi circumdatis.

Hab. in stagnis prope urbem "Rio de Janeiro." — Lect. Dec., 1838.

2. Cypris albida. — *Latere visa*, breviter subelliptica, extremitates fere æqua, latè rotundata, subtus recta, supra obsoletè gibbosa; triplo longior quam latitudo, non duplo longior quam altitudo, margine pubescente. Oculus margine superno remotus. Albido-margaritacea, posticè et supernè paulo brunnea.

Long. $\frac{1}{24}''$. — *Hab.* in stagnis prope "Valparaiso."

3. Cypris Chilensis. — *Latere visa*, subovata, post medium parce altior, subtus paululo arcuata, dorsum vix gibbosa, triplo longior quam latitudo, duplo longior quam altitudo, marginibus antico infero posticoque pubescentibus. Antennæ anticæ 7-articulatæ, setis dimidio corporis vix longioribus.

Long. $\frac{1}{16}''$. — *Hab.* in stagnis prope "Valparaiso."

4. Cypris pubescens. — Brevis; *latere visa*, latissimè fabiformis, subtus recta, extremitatibus latè et æque rotundatis, dorso bene arcuato; *supernè visa*, latè ovata, fronte subacuta; ad totam superficiem pubescens. Antennæ anticæ 7-articulatæ, setis vix longioribus quam 5 articuli ultimi simul sumti. Antennæ posticæ crassiusculæ, articulo ultimo fere dimidii penultimi longitudine, setam longam ad apicem gerente, penultimo ad apicem longè setigero. — Pallidè olivacea.

Hab. in stagnis prope urbem "Sydney" Novi-Hollandiæ.

5. Cypris Vitiensis. — Longè subfabiformis; *latere visa*, altitudine plus duplo longior, subtus recta, dorsum arcuata, ante medium paulo altior, extremitate anticâ latius rotundatâ; *supernè visa*, subelliptica, ante medium vix latior, anticè subacuta, posticè rotundata, latitudine duplo longior; ad totam superficiem pubescens. Antennæ anticæ 7-articulatæ, articulis quinque ultimis inter sese longitudine fere æquis, setis antennâ brevioribus.

Long. $\frac{1}{40}''$. — *Hab.* in stagnis prope portum "Nailoa," ad insulam "Vanua Lebu," in archipelago "Viti."

Genus II. CYPRIDINA. (*Milne Edwards.*)

Testa breviter rostrata corpus omnino tegens, et clausa. *Oculi* duo compositi, remoti. *Antennæ anticæ* setis paucis inæquis ad apicem instructæ, setis rectis, sæpe divaricantibus, vix natatoriis. *Antennæ posticæ* 5 – 7 articulis brevissimis longè et plumosè setigeris confectæ. *Pedes mandibulares* 5-articulati, digitiformes, apicem unguiculati. *Maxillæ* sex, breves, breviter setigeræ, paris secundi laminam ciliatam ad basin gerentes, setis longis, plumosis. *Pedes* duo, longissimè vermiformes, omnino flexiles, ad ova pertinentes, ad apicem setis spinulosis partim reversis armati. *Abdomen* spinulis biseriatis confectum.

1. Cypridina luteola. — Compresso-ovoidea; *latere visa*, latè elliptica, anticè breviter rostrata, fronte non prominulâ, marginibus aliis arcuatis, posticè non gibboso; *supernè visa*, angusto-ovata, anticè acuta,

posticè rotundata. Digitus pedis mandibularis ad basin crassus, sensim attenuatus. Antennæ anticæ ad apicem 4 – 5-setigeræ, setis antennâ non longioribus. — Luteola.

Long. $\frac{1}{12}''$. — *Hab.* in mari "Sulu."

2. Cypridina punctata. — Compresso-ovoidea, punctata; *latere visa*, latè ovalis, posticè gibbosa, infra supraque æquè arcuata, anticè breviter rostrata, fronte prominulâ, rostro gracili, acuminato; *supernè visa*, angusto-elliptica, extremitatibus rotundatis. Spinulæ caudales decem.

Hab. in mari "Sulu."

3. Cypridina olivacea. — Subovoidea; *latere visa*, oblongo-subelliptica, dorsum parcè arcuata, posticè truncata et sparsim ciliata, anticè rostrata, rostro ad apicem rectangulato, fronte prominente; *supernè visa*, longè ovata, anticè obtusa, posticè subtruncata. Antennæ anticæ setis corpore longioribus ad apicem instructæ. Spinulæ caudales octo. — Olivacea.

Long. $\frac{1}{10}''$. — *Hab.* in mari "Sulu."

4. Cypridina gibbosa. — *Latere visa*, angusto-subovata, infra supraque arcuata, posticè valde gibbosa, anticè breviter rostrata, rostro acuto, fronte prominulâ. Antennæ anticæ tribus setis longis aliisque brevioribus ad apicem instructæ, setis antennâ paulo brevioribus. Spinulæ caudales sexdecim. — Fere incolorata. Phosphorescens.

Long. $\frac{1}{20}''$. — *Hab.* in mari Pacifico, lat. aust. 15° 20′, long. occ. 148°. — Lect. die 10 Sept., 1839.

5. Cypridina formosa. — Compresso-ovoidea; *latere visa*, breviter elliptica, infra supraque valde arcuata, margine postico interrupto, non gibboso; *supernè visa*, angusto-elliptica, extremitatibus obtusis. Antennæ anticæ longè setigeræ, setis antennâ parce longioribus. Pedes mandibulares digitum tenues. Spinulæ caudales decem. — Pallidè purpurea et maculis lætè purpureis notata.

Long. $\frac{1}{10}''$. — *Hab.* in mari Pacifico, prope insulam "Upolu." — Lect. die 26 Feb., 1841.

Genus III. CONCHÆCIA. (*Dana.*)

Testa interdum breviter rostrata, corpus omnino tegens, fronte apertâ. *Oculi* simplices. *Antennæ anticæ* 3 – 4-articulatæ, apicem longè setigeræ. *Spiculum* inter antennas sarcosum, simplex, exsertile. *Antennæ posticæ* 5 – 7-articulatæ, articulis brevissimis longè setigeris confectæ, ramo altero brevi. *Pedes mandibulares* fermè 5-articulati, non unguiculati, apice interno articuli primi sæpius etiam basi interno secundi simul corneis (instar mandibulæ) et denticulatis. *Maxillæ* quatuor. *Pedes* quatuor, tenues. *Abdomen* spinulis biseriatis confectum.

1. Conchæcia agilis. — *Supernè visa*, longè ovata, granticè rotundata, posticè acuta; *latere visa*, oblonga, subrectangulata, anticè paulo altior, frontem instar rostri paulo producta, posticè rectè truncata angulo superno acutè rectangulato. Spiculum sagitto-capitatum. Antennæ anticæ 3-articulatæ, setis rectis ad apicem curvatis, unâ crassiore et prope apicem subtilissimè denticulatâ. Pedes mandibulares 5-articulati, articulo secundo valde oblongo, recto, sequentibus sensim attenuatis. — Viridescens.

Long. $\frac{1}{20}''$. — *Hab.* in mari Atlantico, lat. bor. 0° – 4°, long. occ. 17° 30′ – 20° 10′; lat. aust. 0° – 6°, long. occ. 17° 30′ – 24°. — Lect. diebus 25, 26, 27, 29 Oct., et 2, 3, 5, 8 Nov., 1838.

2. Conchæcia rostrata. — *C. agili* similis. — Pedes mandibulares sensim non attenuati, articulis duobus apicalibus fere æquis, vix oblongis, setis longis. Pedes penultimi ultimis duplo longiores longèque setigeri.

Hab. in mari Pacifico, prope insulas "Kingsmill."

3. Conchæcia brevirostris. — *Supernè visa*, brevissimè elliptica, extremitatibus subacutis; *latere visa* literæ ◡ formam similis, dorsam fere recta, posticè rotundata, fronte prominulâ, et truncatâ. Antennæ anticæ setis inæquis, setâ longiore curvatâ prope apicem incrassatâ, nudâ. Spiculum capite cylindrico. Antennæ posticæ 7-articulatæ, articulo secundo non duplo longiore quam sequentes simul sumti. — Albida. Testa lineis parallelis subtilissimè notata.

Long. $\frac{1}{16}''$. — *Hab.* in mari Atlantico, lat. aust. 23°, long. occ. 41° 10′. — Lect. die 19 Nov., 1838.

4. Conchæcia inflata. — *Supernè visa*, brevissimè ovata, frontem rotundata, posticè subacuta; *latere visa* subrotundata, dorsum fere recta, literæ ◡ formam similis, angulis rotundatis, fronte obsoletè prominulâ. Spiculum cylindricum. Antennæ anticæ 3-articulatæ, setis longis, unâ subclavatâ, nudâ. Antennæ posticæ 7-articulatæ, articulo secundo plus duplo longiore quam 5 ultimi simul sumti. Pedes mandibulares 5-articulati, articulo secundo brevi, non longiore quam tertius, basi longè et crassè producto, primo ad apicem pariter producto, his processubus duobus corneis denticulatis instar mandibulæ.

Long. $\frac{1}{15}''$. — *Hab.* in mari Atlantico, lat. aust. 1°, long. occ. 18°; et lat. aust. 11°, long. occ. 12°. — Lect. die 5 Nov., 1838, et die 6 Maii, 1842.

Subordo 2. CORMOSTOMATA.

Os rostriformis. — Tribus quatuor sequentes: —

I. Monstrillacea. — Corpus elongatum (Cyclopi simile). Maxillæ pedesque antici obsoleti. Pedes postici octo natatorii.

II. Caligacea. — Corpus sæpius depressum. Maxillæ pedesque toti numero 12 – 14, octo pedes ultimi plerumque natatorii, plurimi testâ tecti.

III. Lernæacea. — Corpus depressum aut vermiforme. Antennæ pedesque partim obsoleti.

IV. Nymphacea. — Corpus breve, araneiforme, abdomine obsolescente.

Tribus I. MONSTRILLACEA.

Genus MONSTRILLA. (*Dana.*)

Cephalothorax fere cylindricus, 4-articulatus. *Abdomen* 5 – 6-articulatum. *Antennæ* duæ. *Oculi* duo simplices; quoque oculus inferior sicut *Pontellis*. *Truncus buccalis* parvulus subconicus, maxillis pedibusve non munitus. *Pedes* octo, natatorii.

Monstrilla viridis. — Gracilis, posticè attenuata. Oculi remoti. Antennæ 5-articulatæ, setis antennâ brevioribus. Abdomen 5-articulatum, segmento secundo breviore quam primus vel secundus. Styli caudales oblongi, parvi, divaricati, setis 5 subæquis, diffusis. — Lætè graminea.

Long. $\frac{1}{5}''$. — *Hab.* in mari "Sulu." — Lect. die 3 Feb., 1842.

Tribus 2. CALIGACEA.

Familiæ quinque sequentes: —

1. Argulidæ. — Corpus anticè latè peltatum. Ovarium externum nullum. Pedes antici largè tubulati, suctatorii.

2. Caligidæ. — Corpus anticè latè peltatum. Ovarium externum tubiforme, rectum, ovis uniseriatis. Pedes quatuor antici subprehensiles. Antennæ posticæ carapace tectæ.

3. Dichelestidæ. — Corpus depressum, valde angustum. Antennæ posticæ carapace non tectæ. Ovarium externum tubiforme, ovis uniseriatis.

4. Ergasilidæ. — *Corycæis* affines. Corpus vix depressum, plus minusve Cyclopiforme. Antennæ posticæ carapace non tectæ. Ovarium externum elongatum aut sacculiforme, ovis non uniseriatis.

5. Nicothoidæ. — Corpus plerumque Cyclopiforme, sed e lateribus longissimè alatum. Ovarium externum sacculiforme, ovis non uniseriatis.

Familia II. CALIGIDÆ.

Subfamiliæ Caligidarum nobis sunt : —

1. Caliginæ. — Truncus buccalis subovatus, obtusus. *Maxillæ* trunco remotiusculæ, posticè aculeo-elongatæ. *Tubum* ovigerum externum rectum. Corpus anticè latius. (Genera sunt *Caligus*, *Lepeophtheirus*, *Chalimus*, *Caligeria*, *Calistes*.)

2. Pandarinæ. — Truncus buccalis tenuis acuminatus. Maxillæ ad truncum appressæ, parvulæ, lamellatæ. Tubum ovigerum externum rectum. Corpus posticè interdum latius. (Genera sunt *Pandarus*, *Trebius*, *Nogagus*, *Specilligus*, *Dinematura*, *Phyllophora*, *Euryphora*, *Lepidopus*.)

3. Cecropinæ. — Truncus buccalis tenuis, acuminatus. Maxillæ ad truncum appressæ. Tubum ovigerum externum sub testam convolutum. Corpus posticè latius. (Genera sunt *Cecrops*, *Læmargus*.)

Caligaceorum segmenta corporis auctoribus sæpe malè data. Segmentum abdominis anticum, ovarium externum gestans, thoracis posticum sæpe vocatum.* In Cyclopaceis Caligaceisque ovarium externum ad segmentum secundum abdominis normalem semper pertinet. Si hæc animalia Cyclopaceis Crustaceisque aliis comparentur, affinitates veras educemus. Tabula sequens, membris ordine enumeratis, hæc comparationem exhibet.

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* Vide *Hist. Nat. des Crustaces*, par M. Milne Edwards, III. 445 et seq.

SEGMENTA.*	ASTACUS.	LUCIFER.	CYCLOPS.	PONTELLA.	CALIGUS.	PENILIA.	DAPHNIA.	CYPRIS.
1. *Cephalothoracis.*								
I.	Oculi	Oculi	00	00	00	00	00	00
II.	Ant. I.	Ant. I.	Ant. I.	Ant. I.	Ant. I.	Ant. I.	00	Ant. I.
III.	Ant. II.	Ant. II.	Ant. II.	Ant. II.	Ant. II.	Ant. II.	Ant. II.	Ant. II.
IV.	Mand.	Mand.	Mand.	Mand.	Mand.	Mand.	Mand.	Mand.
V.	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Max.
VI.	Max.	Max.	Maxd.	Maxd.	P. verg.	P. nat.	P. nat.	Maxd.
VII.	Maxd.	Maxd.	P. preh.	P. preh.	P. preh.	P. nat.	P. nat.	P. verg.
VIII.	Maxd.	Maxd.	P. nat.	P. nat.	P. nat.	P. nat.	P. nat.	P. ovar.
IX.	Maxd.	P. subnat.	P. nat.	P. nat.	P. nat.	P. nat.	P. nat.	00
X.	P. chel.	P. subnat.	P. nat.	P. nat.	P. nat.	P. nat.	P. nat.	00
XI.	P. verg.	P. subnat.	P. nat.	P. nat.	P. nat.	P. nat.	00	00
XII.	P. verg.	P. subnat.	0 vel 00	P. genit.	00	00	00	00
XIII.	P. verg.	0	00	00	00	00	00	00
XIV.	P. verg.	0	00	00	00	00	00	00
2. *Abdominis.*								
I.	P. rud.	P. rud.	0 vel P. rud.	0 vel 00	0 vel 00	P. rud.	0 vel P. rud.	0 vel 00
II.	P. rud.	P. rud.	0	0	0	0	0	0
III.	P. rud.	P. rud.	0	0	0	0	0	0
IV.	P. rud.	P. rud.	0	0	0	0	0	0
V.	P. rud.	P. rud.	0	0	0	0	0	0
VI.	App. caud.	App. caud.	App. caud.	App. caud	App. caud.	App. caud.	App. caud.	App. caud.
VII.	0	0	00	00	00	00	00	00

* Hæc tabula abbreviationes sequentes continet : —

Ant.	Antennæ.	*P.*	Pedes.	*Preh.*	Prehensiles.
Mand.	Mandibulæ.	*Chel.*	Cheliformes.	*Ovar.*	Ovariani *vel* ovarium.
Max.	Maxillæ.	*Verg.*	Vergiformes.	*Rud.*	Rudimentarii.
Maxd.	Maxillipedes.	*Nat.*	Natatorii.	*Caud.*	Caudales.

Segmenti membra obsoleta, 0 significat ; segmentum membraque ambo simul obsoleta, 00.

Subfamilia 1. CALIGINÆ.

Genus I. CALIGUS.

Cephalothorax 2-articulatus ; segmento antico latè peltato, fronte discis duobus suctatoriis plerumque instructâ ; postico parvulo, non alato. *Oculi* simplices pigmento unico conjuncti. *Antennæ posticæ* prehensiles, et extus basin sæpius spinâ crassâ munitæ. *Pedes* duo antici vergiformes, bifidi;* duo proximi sequentes subprehensiles digito acuto confecti; sex sequentes natatorii; duo reliqui simplices, vergiformes. Venter furculâ parvulâ armatus. *Abdomen* 2–3-articulatum, appendicibus caudalibus sublamellatis, marginem setigeris. [Sexus, antennas posticas, pedes paris secundi, et formam abdominis, valde dissimiles.]

1. Caligus Thymni. — Carapax oblongus, discis suctatoriis subfrontem munitus. Abdomen 3-articulatum, segmento primo ad basin lato, sequentibus duplo latiore; ano valde prominente. Styli caudales parvuli, ad angulos abdominis posticos insiti, anum vix superantes. Antennæ posticæ spinâ extus basin non munitæ. Furcula simplex, brachiis divergentibus, subacutis. — *Feminæ:* Abdominis segmentum primum oblongum, lateribus rectis et posticè parce divergentibus, angulis posticis prominentibus; segmentis duobus sequentibus simul sumtis elongatis, et fere longioribus. — *Maris:* Abdominis segmentum primum subquadratum, angulis posticis vix prominentibus, segmentis sequentibus simul sumtis brevioribus.

Long. $\frac{3}{8}''$. — *Hab.* in corpus *Thymni pelamys* mari Atlantico, lat. bor. 27°, long. occ. 19° 30′. — Lect. die 27 Sept., 1838.

2. Caligus productus. — *Feminæ:* Carapax ovatus, discis suctatoriis subfrontem munitus. Segmentum secundum angustum. Abdomen 3-articulatum, segmento primo ad basin perangusto; ano non prominulo. Styli caudales parce oblongi, terminales. Antennæ posticæ ad basin posticè acutæ et extus basin spinâ munitæ. Furcula simplex, brachiis parce divergentibus, tenuibus, acutis. — Segmentum abdominis anticum oblongum, subellipticum, angulis posticis longè crassèque productis, sequentibus angustis, fere lineatis.

Long. $\frac{1}{4}''$. — *Hab.* intus operculum *Thymni pelamys*, in mari Atlantico, lat. bor. 27°, long. occ. 19° 30′. — Lect die 27 Sept., 1838.

3. Caligus gracilis. — *Feminæ:* Carapax oblongus, fere ellipticus, discis suctatoriis rotundatis. Segmentum secundum transversum, brevissimum. Abdomen 2-articulatum, segmento antico fere quadrato, postico angustiore, parce oblongo, posticè truncato. Styli caudales terminales, paulo oblongi. Furcula ventralis simplex, brachiis divergentibus, truncatis. Antennæ posticæ spinâ oblongâ extus basin munitæ.

Long. $\frac{1}{6}''$. — *Hab.* in corpus Serrani, in mari juxta "Rio de Janeiro."

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* Extremitas bifida articulo tertio et apice secundi elongato composita.

4. Caligus (Lepeophtheirus) Bagri. — Carapax subrotundatus, discis suctatoriis non munitus: segmentum secundum fere oblongum. Abdomen 3-articulatum, segmento primo valde latiore; segmentis duobus posticis simul sumtis oblongis, ano prominente. Styli caudales parvuli ad angulos abdominis posticos insiti, anum vix superantes. Antennæ posticæ spinâ extus basin non munitæ. Furcula simplex, brachiis divergentibus, subacutis. — *Feminæ:* Abdominis segmentum primum valde oblongum, posticè truncatum, anticè angustius, lateribus parallelis. — *Maris:* Segmentum abdominis primum latum, paulo oblongum, subhexagonum. Pedes paris secundi crassissimi, digito acuto setâque internâ armato, margine manûs interno fere recto, pollice nullo.

Long. $\frac{1}{4}''$. — *Hab.* in corpus et intus opercula Bagri, juxta "Rio de Janeiro." — Lect. Nov., 1838.

Genus II. CALISTES. (*Dana.*)

Caligo similis. *Cephalothorax* 2-articulatus, segmento postico non alato. *Pedes duo postici* biramei, subnatatorii.

Trebio affinis, ced cephalothorax non 3-articulatus et maxillæ nec lamellares, nec ad truncum buccalem appressæ.

Calistes Trigonis. — *Feminæ:* Cephalothorax subrotundatus, discis suctatoriis nullis. Segmentum secundum parvum, lateribus rotundatis. Abdomen 3-articulatum, segmento primo lato, sequentibus lineatis, ano vix prominente. Styli caudales styliformes, oblongi. Antennæ posticæ spinâ corneâ longâ extus basin munitæ. Furcula simplex, brachiis parallelis. Maxillæ posticè aculeo-furcatæ. Pedes postici natatorii, ramis 3-articulatis, parce subæquis, setis longis. — Segmentum abdominis primum subquadratum, angulis rotundatis, duobus sequentibus fere æquis et simul sumtis non brevioribus quam primum, lineatis.

Long. $\frac{1}{4}''$. — *Hab.* in corpus speciei Trigonis. — Lect. juxta "Rio de Janeiro," Dec., 1838.

Genus III. CALIGERIA. (*Dana.*)

Caligo similis. *Cephalothorax* 2-articulatus, segmento postico bialato. *Pedes duo postici* biramei, setis brevibus, non natatoriis.

Caligeria bella. — *Feminæ:* Cephalothorax rotundatus, discis suctatoriis nullis. Segmentum secundum transversum, angulos posticos alatum, alis latis, approximatis, margine toto arcuato. Abdomen 3-

articulatum, segmento primo lato, tertio posticè truncato, lamellis caudalibus latis, paulo oblongis, contiguis, setis lamellâ brevioribus, fere æquis. Furcula simplex, tenuis, basi angustissimo, brachiis divergentibus. Pedes postici tenues, ramis valde inæquis, ramo breviore 2-articulato, altero 3-articulato. — Segmentum abdominis primum paulo oblongum, subellipticum, angulis posticis rotundatis, segmentis sequentibus dimidio angustioribus, non oblongis, subæquis.

Hab. in branchias speciei Thynni, in mari Atlantico, lat. aust. 11°, long. occ. 14°. — Lect. die 7 Maii, 1842.

Subfamilia 2. PANDARINÆ.

Genus I. NOGAGUS. (*Leach.*)

Cephalothorax 4-articulatus, fronte arcuatâ, segmento secundo ad latera posticè producto, duobus sequentibus non alatis. *Abdomen* stylis brevibus sublamellatis setigerisque confectum. *Oculi* simplices, remotiusculi; (an quoque oculus subtilissimus intermedius ?). *Pedes* paris secundi crassè cheliformes; pedes natatorii octo, grandes.

Nogagus validus. — *Feminæ?* Carapax paulo oblongus, ellipticus, segmento secundo ad latera posticè producto, segmentis duobus sequentibus transversis. Pedes secundi paris crassissimè cheliformes, pollice brevi, truncato, digito obtuso. Abdomen 2-articulatum, segmento antico subquadrato, angulis posticis prominulis; segmento postico brevi, transverso, angulis posticis truncatis. Styli caudales latè lamellati, paulo oblongo, setis tribus plumosis.

Hab. in corpus Squali, mari Pacifico prope Novi-Zealandiam. — Lect. die 15 Ap., 1840.

Genus II. SPECILLIGUS. (*Dana.*)

Nogago segmenta cephalothoracis pedesque affinis. *Oculi* duo remotiusculi, et *conspicillis grandibus instructi*, eisque Sapphirinæ similes.

Specilligus curticaudus. — *Feminæ?* Carapax oblongo-ellipticus, anticè arcuatus, discis suctatoriis post antennam anticam munitus. Segmentum secundum ad latera posticè productum, tertium quarto latius et dimidio carapacis parce latius. Pedes secundi paris crassissimè cheliformes, pollice brevi truncato, digito obtuso. Abdomen 2-articulatum, segmento antico paulo oblongo, angulis posticis truncatis et setam minutam gerentibus, segmento postico brevi, ano prominente ; stylis parvulis, triangulatis, ad angulos insitis, anum non superantibus, setis tribus, plumosis.

Hab. in corpus Squali, mari Pacifico prope Novi-Zealandiam. — Lect. die 15 Ap., 1840.

Genus III. PANDARUS. (*Leach.*)

Cephalothorax 4-articulatus, carapace grandi, segmentis sequentibus transversis, secundo ad latera alatè producto, tertio quartoque posticè alatis, et bilobatis. *Abdomen* 2–3-articulatum, segmento ultimo tecto, secundo posticè rotundato et utrinque stylis caudalibus sæpius munito. *Pedes* paris secundi crassè cheliformes ; natatorii octo, setis brevissimis. *Oculi* duo, remotiusculi. *Styli caudales* styliformes, acuti, subnudi.

1. Pandarus concinnus. — Carapax paulo oblongus, ellipticus, posticè truncatus et dentatus, angulis posticis paululo elongatis, obtusis. Segmentum secundum brevissimum, alis divaricatis, subrectangulatis, angulis posticis subacutis. Segmenta duo sequentia transversa, subæqua, lobis rotundatis acutè sejunctis. Abdomen 3-articulatum, segmento antico lato, postice profundè excavato, lateribus arcuatis, angulis posticis acutis, bene divaricatis. Styli caudales non tecti.

Hab. in corpus Squali, mari Pacifico juxta insulam " Tongatabu."

2. Pandarus Satyrus. — Carapax vix oblongus, posticè sensim latior, angulis posticis parce prominentibus, margine postico integro, antico obsoletè denticulato. Segmentum secundum brevissimum, alis divaricatis, oblongo-ellipticis. Segmenta cephalothoracis sequentia transversa, primo minore, lobis rotundatis acutè sejunctis. Abdomen 3-articulatum, articulo antico grandi, posticè angusto-excavato, lateribus fere rectis, parce deinde subito angustioribus et angulis posticis internis acutis ; segmento secundo dimidio vix angustiore, oblongo, obovato. Styli caudales non tecti.

Long. 5′′. — *Hab.* in corpus Squali, mari Pacifico juxta insulam " Tongatabu."

3. Pandarus brevicaudus. — Carapax vix oblongus, subellipticus, posticè valde excavatus, angulis posticis longè productis, obtusis. Segmenta sequentia tria transversa. Alæ segmenti secundi non divaricatæ, posticè obtusæ. Segmenta tertium quartumque abdomine non latiora,

margine dorsali postico latè excavato. Segmentum abdominis anticum subquadratum, angulis posticis obliquè truncatis et setâ minutâ extus instructis, posticè angustum, subtruncatum; segmentum secundum parvulum, transversum stylis triplo longioribus.

Long. ¼″. — *Hab.* in corpus Squali, mari Pacifico prope Novi-Zealandiam.

Genus IV. DINEMATURA. (*Latreille.*)

Cephalothorax 3-articulatus, segmento secundo parvo, testâ tertii dorsali posticè valde expansâ et profundè bilobatâ, eoque elytroideâ. *Abdomen* 2-articulatum, carapace paulo angustius, oblongus, segmento antico maximo, posticè bilobato, postico parvulo, celato. *Styli caudales* lamellati, terminales.

Dinematura braccata. — Carapax fere rotundatus, abdomine latior, discis suctatoriis post antennas munitus; posticè quadrilobatus, lobis duobus internis angustis, curvatis, subacutis. Segmentum secundum transversum, ad latus subacutum. Segmenti alæ tertii vix oblongæ, dimidii abdominis longitudine, posticè parce latiores, angulis rotundatis, margine postico fere recto. Segmentum abdominis primum profundè bilobatum, secundum quadratum. Styli caudales grandes, subovati, abdominis extremitatem paulo superantes, setis paucis brevissimis.

Long. ½″. — *Hab.* in corpus Squali, mari Pacifico juxta insulam "Tongatabu."

Genus V. LEPIDOPUS. (*Dana.*)

Corpus anticè non latius. *Cephalothorax* 3-articulatus, carapace minore quam abdomen, segmentis duobus sequentibus posticè largè bialatis. *Abdomen* 2-articulatum, segmento postico parvulo, celato, antico maximo et posticè bilobato. *Antennæ posticæ* articulo tenui falciformi confectæ. *Pedes paris secundi superficie terminali latâ prehensili squamatâ instructi. Pedes natatorii* quatuor ultimi similes, latè lamellati.

Lepidopus armatus. — Corpus oblongum, posticè sensim latius. Carapax subquadratus, posticè paulo latior, margine postico vix arcuato. Segmenta duo sequentia subæqua, alis grandibus, fere rotundatis. Abdomen oblongum, carapace valde longius, posticè non angustius, paulo bilobatum, lobis rotundatis. Antennæ posticæ ad apicem longè falciformes et denticulis biseriatis armatæ, articulo penultimo subquadrato.

Pedes paris secundi grandes, articulo penultimo ad apicem spinigero, ultimo crassissimo, superficie terminali oblongâ, squamatâ, squamulis spinulâ armatis.

Long. $\frac{1}{3}''$. — *Hab.* in corpus speciei Musteli (Squalorum familiæ). — — Lect. ad urbem "Rio de Janeiro."

Tribus 4. NYMPHACEA.

Genus ASTRIDIUM. (*Dana.*)

Pycnogono affinis. *Caput* duobus maxillipedibus subtus instructum parvulis, debilibus, apice obtusis, non prehensilibus. *Pedes* octo unguiculo confecti. *Abdomen* perbrevis.

Astridium orientale. — Cephalothorax stellatus, segmentis medio connatis, deinde liberis. Abdomen breve, posticè angustius, obtusum. Truncus buccalis oblongus, subcylindricus, corpore vix brevior. Segmentum corporis primum anticè non transversum, posticè angustius et deinde utrinque longè productum instar rami brevis,* et pedes anticos gerens. Maxillipedes parvuli, obsoletè 3-articulati, obtusi. Pedes crassiusculi, articulo primo vix oblongo, sequentibus sex subæquis, tertio paulo breviore.

Long. $\frac{1}{8}''$. — *Hab.* in mari "Sulu." — Lect. die 11 Feb., 1842.

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* Hæc pars postica segmenti primi segmentum corporis secundum vere est, quamvis articulatione verâ non sejuncta.

XIX.

From the Author

III. ZOOLOGY.

1. *Conspectus Crustaceorum quæ in Orbis Terrarum Circumnavigatione, Carolo Wilkes e Classe Reipublicæ Fœderatæ Duce, lexit et descripsit* JACOBUS D. DANA—(Proceedings of the American Academy of Arts and Sciences, Boston, May 4, 1847, vol, i, p. 150–154, and Nov. 8, 1849, vol. ii, pp. 9–61.)—This Conspectus includes descriptions of 183 new species of Entomostraca, collected by Mr. James D. Dana during the cruise of the Exploring Expedition. We here cite the descriptions of the genera and families introduced, as they contain some modifications of those received, and mention only the names of the new species included in the Conspectus under each genus. As elsewhere stated, the full Report on the Crustacea of the Expedition is in course of preparation and will be illustrated by drawings of these and the other new species collected.

ORDO 2. ENTOMOSTRACA.

SUBORDO 1. GNATHOSTOMATA.*

Tribus I.—CRUSTACEA CYCLOPACEA (vel Copepoda).†

Familia I. CYCLOPIDÆ.

Oculi duo simplices tantum. *Palpi* mandibularum maxillarumque breves aut obsoleti. *Sacculi ovigeri* duo.

Genus I. CYCLOPS.—*Antennæ maris anticæ* subcheliformes aut articulo geniculante instructæ.

Sp. C. brasiliensis, curticaudus, pubescens, MacLeayi, vitiensis.

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* See this Journal, 2nd Ser., i, 225.

† Cyclopaceorum membra sunt:—

Cephalothorax 4–7-articulatus. *Abdomen* 1–6-articulatum, carapace non tectum.

Frons sæpissimè rostrata, rostro aut simplice, aut furcato, aut transversim emarginato, aut appendicibus instructo.

Oculi duo simplices, pigmento aut connati aut disjuncti; quoque in quibusdam oculi duo coaliti sub capite insistentes; aliis, oculi maximo lenticulo prolato et corneâ latè oblatâ constructi.

Antennæ anticæ 4–28-articulatæ, aut simplices, aut appendiculatæ; *posticæ* 2–5-articulatæ et sæpe ramum ferentes, aliis ad apicem setigeræ, aliis subcheliformes.

Mandibulæ ad apicem dentatæ, sæpius palpigeræ:—membra cephalothoracis ad normam quarta; itaque breviter denominata ct. iv.

Maxillæ duæ (ct. v.) setosæ; sæpe palpigeræ, palpo sive parvulo et vix discernendo, sive setas diffusas ferente.

Maxillipedes (vel Maxillæ, ct. vi.) duo, aliis parvi et parcius setigeri, aliis crassiores et valde setigeri.

Pedes antici (ct. vii) duo simplices, aut obsolescentes aut elongati, aliis setigeri, aliis subcheliformes.

Pedes biremes decem (ct. viii, ix, x, xi, xii); octo anteriores sæpius natatorii, sed duo antici interdum subprehensiles; duo posteriores plurimum obsoleti aut parvuli; in quibusdam masculinis pergrandes et uno ambove prehensiles.

Abdominis ad basin pertinentes sæpissimè *pedes spurii*, sive obsolescentes sive oblongi et setis armati; ad extremum, styli caudales duo, unusquisque 4–6 setis plerumque plumosis instructus.

Cephalothorace *septem*-articulato, ad segmentum primum antennæ quatuor pertinent; ad secundum, mandibula, maxillæ, et maxillipedes (ct. iv, v, vi); ad tertium,

Familia II. HARPACTIDÆ.

Oculi duo simplices tantum. *Palpi* mandibulorum maxillarumque parvuli, aut obsoleti, setis diffusis non instructi. *Sacculus ovigerus* unicus. *Antennæ posticæ* setis habitu digitorum ad apicem instructæ.

Genus I.—HARPACTICUS. (*Milne Edwards.*)—*Frons* subrostrata, appendicibus nullis. *Antennæ anticæ maris* subcheliformes, aut articulo geniculante instructæ; *feminæ* basi 2–5 articulatâ et quasi flagello curto sæpius minutè 5-articulato compositæ, ad apicem basis appendicem brevem ferentes. *Cephalothorax* 4-articulatus. *Pedes antici* subcheliformes mediocres.

SYN.—Arpacticus, et Cyclopsina partim (C. castor excluso), *M. Edwards.*—Nauplius, *Philippi.*—Canthocarpus, *Westwood.*—Doris, *Koch.*—Canthocarpus et Arpacticus, non Cyclopsina, *Baird.*

Sp. H. virescens, concinnus, sacer, linearis, roseus, acutifrons.

Genus II. CLYTEMNESTRA. (*Dana.*)—*Frons* subrostrata, appendicibus nullis. *Antennæ anticæ* flexiles; *maris*, non subcheliformes. *Pedes antici* (ct. vii,) permagni, subcheliformes.

OBS. Non *Arpacticus* Bairdii: *Cyclops chelifer* Arpacticis pertinet. Magnitudo pedium anticorum character genericum non bene validum, nisi pedes pergrandes, quoque pro antennis geniculatis in coitu usitati sunt; ideoque est antennæ *maris* Clytemnestræ non subcheliformes.

Sp. C. scutellata.

Genus III. SETELLA. (*Dana.*)—*Corpus* angustissimum fere lineare, anticè attenuatum et subacutum, et fronte appendices duas parvulas falciformes subtus gerens. *Antennæ anticæ* flexiles, appendice brevi instructæ, setis brevibus; *maris* non subcheliformes. *Pedes antici* (ct. vii) mediocres aut parvi. *Pedes proximè sequentes* lateraliter porrecti, ad apicem breviter setigeri. *Pedes abdominis* elongati et longè setigeri. *Setæ caudales* duæ longissimæ, (in speciebus scrutatis corpore valde longiores, spinulosæ, et strictè appressæ,) reliquæ brevissimæ. (Tubum cibarium sæpius lætè rubrum.)

Sp. S. tenuicornis, longicauda, gracilis, crassicornis, aciculus.

Familia III. CALANIDÆ.

Oculi simplices; etiam sæpe alii duo inferiores deorsum spectantes. *Pedes mandibulares maxillaresque* articulati et longè setigeri. *Sacculus oviger* unicus. *Antennæ anticæ* elongatæ, non appendiculatæ. *Antennæ posticæ* ad apicem setigeræ.

Genera notis sequentibus distinguenda:—

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pedes quatuor antici (ct. vii, viii); (cephalo-thorace *quadri*-articulato, hæc tota adhuc enumerata ad segmentum anticum pertinent;) ad segmenta sequentia, singulatim, duo pedes biremes, (ct. ix, x, xi, xii).

Mandibula est articulus pedis mandibularis primus, et "palpus" articuli sequentes pedis reliqui.

Setæ antennarum plerumque valent ad species distinguendum, et præcipuè illæ articulorum ultimorum. Articulos 2, 3, aut 4, ultimum præcedentes, *subultimos* sæpe vocamus; et eorum setæ, *anteriores* et *posteriores*, scrutandæ et comparandæ.

Oculis inferioribus nullis.

- Antennis anticis nec angulo flexis nec articulatione geniculatis.
  - Pedibus posticis (ct. xii.) non prehensilibus, sæpe obsoletis.
    - Pedibus anticis (ct. vii.) majoribus quam maxillipedes (ct. vi.), lateraliter porrectis, non geniculatis. .... 1. CALANUS.
    - Pedibus anticis minoribus quam maxillipedes; maxillipedibus sub corpore geniculatis; abdomine longissimo. .... 2. SCRIBELLA.
  - Pedibus posticis elongatis, subulatis, uno subprehensili; pedibus anticis duplo geniculatis, sub corpore gestis, ad apicem deflexis. ...... 3. EUCHÆTA.
- Antennis anticis angulo levissimè flexis, nunquam articulatione geniculatis; pedibus posticis *maris* prehensilibus. .... 4. UNDINA.
- Antennâ *maris* anticâ dextrâ geniculante.
  - Maxillipedibus duplo geniculatis, inflexis, setis longis, nudis. .... 5. CANDACE.
  - Max. rectis, setis longis, setulosis. .... 6. CYCLOPSINA.

Oculis superioribus nullis, inferioribus grandibus; antennâ *maris* anticâ dextrâ geniculante; aliis *Calano* affinibus. .... 7. CATOPIA.

Oculis inferioribus et superioribus.

- Antennâ *maris* anticâ dextrâ non geniculante, ambabus flexilibus, setis diffusis; pedibus posticis parvulis, uniarticulatis. .... 8. ACARTIA.
- Antennâ *maris* anticâ dextrâ geniculante; setis non diffusis; pede postico dextro crasso, prehensili. .... 9. PONTELLA.

Genus I. CALANUS. (*Leach.*)—*Rostrum* furcatum. *Antennæ anticæ* sive leviter curvatæ sive rectæ, *maris* non geniculantes. *Pedes postici* (ct. xii.) obsolescentes, *maris* non prehensiles. *Pedes antici* (ct. vii.) elongati, latè porrecti, maxillipedibus (ct. vi.) majores, non geniculati. *Oculi inferiores* nulli. Cephalothorax 4–5-articulatus. *Rami antennarum posticarum* subæqui, ramo breviore ad apicem 3 setis instructo, in dorso setigero.*—Hab. in maribus Atlantico et Pacifico.

SYN.—Cyclops, *Müller.*—Calanus, *Leach.*—Cetochilus? *Roussel de Vauzème.*

Sp. C. rotundatus, comptus, nudus, magellanicus, crassus, furcicaudus, arcuicornis, turbinatus, stylifer, curtus, scutellatus, pavo, levis, medius, placidus, recticornis, setuligerus, pellucidus, affinis, flavipes, tenuicornis, sanguineus, mundus, inauritus, simplicicaudus, appressus, communis, amænus, bellus, gracilis, elongatus, attenuatus, rostrifrons, cornutus.

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* Species optimè distinguendæ sunt:—

1. Per gustum antennarum anticarum; etiam per discrimina setarum, præcipuè apicalium et subapicalium; per longitudinem et numerum articulorum:
2. Per structuram maxillipedium, et pedium anticorum:
3. Per pedes posticos thoracicos:
4. Per numerum segmentorum cephalothoracis, et characteres segmentorum antici posticique:
5. Per stylos caudales et eorum setas:

Articulatio cephalothoracis non character *generica.* Numerus segmentorum abdominis per ætatem variat, et vix valet *species* distinguere.

Genus II. SCRIBELLA. (*Dana.*)—*Antennæ anticæ* elongatæ, pauciarticulatæ, longè setigeræ, setis diffusis, *maris* non geniculantes. *Antennæ posticæ* simplices (?). *Maxillipedes* (ct. vi.) maximi, pedibus proximis majores, 4-articulati, geniculati et prorsum flexi. *Oculi inferiores* nulli. *Cephalothorax* 4–5-articulatus, capite non discreto. *Abdomen* valde elongatum, cephalothorace non brevius. *Styli caudales* oblongi, divaricati. [Sæpius, e basi pedis biremis, seta grandis lateraliter porrecta.]—Hab. in maribus Atlantico et Pacifico.

SYN.—Scribella, *D.*, Amer. Jour. Sci., Ser. 2da, i, 227.

Sp. S. scriba, setiger, abbreviata.

Genus III. EUCHÆTA. (*Philippi.*)—*Frons* acuta. *Rostrum* transversim emarginatum. *Antennæ anticæ* duplo leviter curvatæ, nunquam minimè angulo flexæ, *maris* non geniculantes. *Pedes* maris *postici* (ct. xii.) ambo valde elongati, subulati. *Pedes antici* (ct. vii.) maxillipedibus (ct. vi.) majores, duplo geniculati et sub corpore gesti, penecillum setarum nudarum reflexum ferentes. *Oculi inferiores* nulli. *Cephalothorax* 4–5-articulatus, capite non discreto.—Hab. in maribus Atlantico et Pacifico.

SYN.—Euchæta, *Philippi*, Archiv für Naturgeschichte, vol. ix, p. 55.—Euchirus, *Dana*, Amer. Jour. Sci., Ser. 2da, i, 228.

Sp. E. communis, concinna, pubescens, diadema.

Genus IV. UNDINA. (*Dana.*)—*Antennæ anticæ* ante medium angulo leviter flexæ, ad apicem fronte posteriores, *maris* non geniculantes. *Pedes postici* (ct. xii.) *maris* grandes, dextro subcheliformi. *Pedes antici* (ct. vii.) elongati, maxillipedibus sæpe majores et valde porrecti, non geniculati. *Oculi inferiores* nulli. *Cephalothorax* 4–5-articulatus, capite non discreto.—Hab. in maribus Atlantico et Pacifico.

Sp. U. vulgaris, simplex, inornata.

Genus V. CANDACE. (*Dana.*)—*Frons* quadrata. *Oculi inferiores* obsoleti. *Antennæ anticæ* regulariter et breviter setigeræ, transversæ; dextrà *maris* articulatione geniculante. *Maxillipedes* (ct. vi.) pedibus proximis majores, duplo geniculantes et inflexi, 4-articulati, setis nudis, longis. *Pedes maris postici* dispares, dextro prehensili. *Abdomen* mediocre. *Styli caudales* breves, setis strictè appressis. [Animal sæpius partim nigrescens.]—Hab. in maribus Atlantico et Pacifico.

SYN.—Candace, *D.*, Amer. Jour. Sci., Ser. 2da, i, 228. 1846.

Sp. C. ornata, pachydactyla, ethiopica, curta, acuta, truncata.

Genus VI. CYCLOPSINA. (*Milne Edwards.*)—*Rostrum* furcatum. *Antennæ anticæ* sive rectæ sive leviter curvatæ, *maris* dextrâ articulatione geniculante. *Maxillipedes* (ct. vi.) pedibus proximis majores, non geniculati, setis longis spinulosis instructi. *Oculi inferiores* nulli. *Cephalothorax* 4–7-articulatus, capite sæpe discreto. *Antennæ posticæ* iisdem *Calani* similes. *Pes maris posticus dexter* grandis et prehensilis. [Maxillipedes, et antennam *maris* anticam pedemque posticum dextrum, *Pontellæ* affinis; antennam posticam, oculos, et habitum, *Calano* similis. *Si oculi inferiores* adsunt, species *Pontellæ* pertinent.]—Hab. in maribus Atlantico et Pacifico.

SYN.—Cyclopsina (C. castor), *Milne Edwards.*—Cetochilus? *Roussel de Vauzème.*—Monoculus (M. castor), *Jurine.*—Cyclops (C. castor), *Desmarest.*—Dioptomus (D. castor), *Westwood.*—Non Cyclopsina *Bairdii.*

Sp. C. longicornis, calanina, tenuicornis, gracilis.

Genus VII. CATOPIA. (*Dana.*)—Antennas posticas et antennarum habitum anticarum *Calano* affinis. Antennam *maris* anticam dextram *Pontellæ* affinis. *Oculi* superiores nulli; oculus inferior unicus (?)—Hab. in mari Sinensi.

Sp. C. furcata.

Genus VIII. ACARTIA. (*Dana.*)—*Antennæ anticæ* rectiusculæ, flexiles, setis irregulariter diffusis, dextrâ *maris* non geniculante. *Maxillipedes* (ct. vi.) pedibus proximis majores, recti, setis setulosis longis instructi. *Pedes postici* (ct. xii.) parvuli, uni-articulati, 2 setas divaricatas gerentes. *Oculi* duo inferiores et duo superiores. *Setæ caudales* mediocres.—Hab. in maribus Atlantico et Pacifico.

Sp. A. limpida, negligens, tonsa, laxa.

Genus IX. PONTELLA.—*Rostrum* furcatum. *Oculi* duo *superiores*, pigmentis sive coalitis sive remotis; duo *inferiores* coaliti. *Antennæ anticæ* multiarticulatæ, setis non diffusis, antennâ dextrâ *maris* geniculante. *Cephalothorax* 4–7-articulatus, segmento cephalico sæpe discreto. *Maxillipedes* (ct. vi.) grandes, recti, setis longis, setulosis. *Pedes antici* (ct. vii.) minores. *Pes maris posticus* (ct. xii.) *dexter* crassus, prehensilis.—Hab. in maribus Atlantico et Pacifico.

SYN.—Pontia, *Milne Edwards.**—Irenæus, *Goodsir.*—Broteas, *Lovén.*

Sp. P. elliptica, brachiata, plumata, turgida, curta, contracta, media, crispata, detruncata, simplex, exigua, agilis, acutifrons, acuta, rubescens, emerita, regalis, perspicax, strenua, protensa, hebes, frivola, detonsa, argentea, speciosa, princeps, fera.

Familia IV. CORYCÆIDÆ.

Oculi duo grandes plus minusve remoti, lenticulis duobus prolatis maximis, et corneis oblatis instar conspicillorum, constructi; quoque duo oculi connati minutissimi. *Antennæ anticæ* pauci-articulatæ, simplicissimæ. *Antennæ posticæ* simplicissimæ. *Pedes mandibulares maxillaresque* brevissimi. *Sacculi ovigeri* duo.

Genus I. CORYCÆUS. (*Dana.*)—*Corpus* crassum, anticè rotundatum. *Conspicilla* fronte affixa. *Antennæ posticæ* pedibus anticis majores. *Pedes antici* sexu vix dissimiles digito subuncinato tenuique confecti. *Abdomen* pauci-articulatum, appendicibus basis nullis, stylis caudæ styliformibus.—Hab. in maribus Atlantico et Pacifico.

SYN.—Corycæus, *D.*, Proc. Acad. Nat. Sci. Philad., 1847; Am. Jour. Science, Ser. 2da, i, 228.

Sp. C. gracilis, decurtatus, deplumatus, varius, longistylis, obtusus, crassiusculus, laticeps, vitreus, agilis, orientalis, lautus, speciosus, remiger, latus, venustus, pellucidus, concinnus, productus, longicaudatus.

Genus II. ANTARIA. (*Dana.*)—*Corpus* crassum, antice rotundatum. *Conspicilla* fronte affixa. *Antennæ posticæ* parvæ, ad apicem breviter setigeræ, pedibus anticis (ct. vii.) non majores, carpo posticè angulato. *Pedes antici* sexu vix dissimiles (?), digito tenui subuncinato. *Abdomen* pauci-articulatum. [Cephalothorax postice obtusus.]—Hab. in maribus Atlantico et Sinensi.

Sp. A. crassimana, gracilis, obtusa.

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* *Pontia* Papilionum generis vocabulum, itaque *Pontella* nobis scripsa.

Genus III. Copilia. (*Dana.*)—*Corpus* depressum, fronte latè quadratum, et conspicilla ad angulos anticos gerens. *Antennæ posticæ* digitiformes, digito elongato, subulato. *Abdomen* pauci-articulatum, appendicibus ad basin nullis.—Hab. in mari Pacifico.

Sp. C. mirabilis, quadrata.

Genus IV. Sapphirina. (*Thomson.*)—*Corpus* depressum. *Sexus* antennas posticas stylosque caudales similes, et abdomen pedesque anticos (ct. vii., *vere* maxillipedes,) dissimiles. *Antennæ posticæ* pediformes, digito tenui, 2-articulato, ad apicem unguiculato. *Abdomen feminæ* 5–6-articulatum, thorace subito angustius, appendices breves ad basin latere gerens; *maris* 4–5-articulatum, thorace subito non angustius, appendicibus nullis. *Pedes maris antici* digitum elongati, *feminæ* breves. *Styli* caudales laminati.—*Mares* sæpe lætè opalini aut fulgidè metallini, interdum cærulei. *Feminæ* sæpius incoloratæ, plus minusve pellucidæ; interdum opacæ et azuleæ.—Hab. in maribus Atlantico et Pacifico.

Sp. S. iris, angusta, elongata, metallina, coruscans, inæqualis, ovata, splendens, ovalis, detonsa, indigotica, orientalis, ovato-lanceolata, gemma, bella, opalina, versicolor, tenella, obesa, obtusa.

Familia V. Miracidæ.

Oculi duo conspicillis maximis constructi. *Antennæ posticæ* ad apicem setigeræ. *Pedes mandibulares maxillaresque* brevissimi. *Abdomen* feminæ (an *maris ?*) 6-articulatum. *Sacculus ovigerus* unicus.

Genus Miracia. (*Dana.*)—*Corpus* elongatum, non depressum, ad frontem duas appendices falciformes subtus gerens. *Antennæ anticæ* appendiculatæ, flexiles et non geniculantes. *Pedes antici* (ct. vii.) mediocres, uni-unguiculati; *pedes* duo sequentes biremes, lateraliter porrecti. *Pedes abdominis* longè setigeri. *Setæ caudales* elongatæ.—*Setellæ* affinis, sed conspicilla oculorum diversæ.—Hab. in maribus Atlantico et Pacifico.

Sp. M. efferata, gracilis.

Tribus II. DAPHNIACEA (vel Cladocera).

Corpus testâ plerumque tectum, capite antennisque posticis sæpius exclusis. *Pedes* plures natatorii. *Antennæ anticæ* sæpe obsoletæ, raro elongatæ. *Oculus* compositus. [Membra tota cephalothoracis mandibularia, maxillaria, pediformiaque, numero 12–16.]

Familiæ sunt:—

1. Penilidæ.—Pedes duodecim. Antennæ anticæ obsolescentes.
2. Daphnidæ.—Pedes decem. Antennæ anticæ sive obsoletæ sive uni-articulatæ.
3. Bosminidæ.—Pedes decem. Antennæ anticæ elongatæ, multi-articulatæ.
4. Polyphemidæ.—Pedes octo. Antennæ anticæ obsolescentes.

Familia I. Penilidæ.

Genus Penilia. (*D.*)—*Caput* discretum, longè rostratum. *Antennæ posticæ* grandes, ramis duobus 2-articulatis. *Abdomen* non inflexum, stylis duobus corneis confectum.—Hab. in maribus prope oras.

Sp. P. avirostris, orientalis.

Familia II. DAPHNIDÆ.

Genus I. DAPHNIA.—*Abdomen* inflexum. *Antennæ anticæ* obsolescentes. *Antennæ posticæ* birameæ, ramis 3–4-articulatis. *Intestina* non convoluta.—Hab. in stagnis.

Sp. D. textilis, australiensis, macrura.

Genus II. SIDA.—*Abdomen* rectum. *Antennæ anticæ* fere obsoletæ. *Antennæ posticæ* birameæ, uno ramorum 2-articulato. *Intestina* non convoluta.—Hab. in stagnis.

Sp. S. angusta.

Genus III. LYNCEUS.—*Abdomen* inflexum. *Intestina* convoluta. *Antennæ anticæ* fere obsoletæ. *Antennæ posticæ* parvæ.

Sp. L. latifrons.

Familia IV. POLYPHEMIDÆ.

Pedes octo. Oculus maximus.

Genus POLYPHEMUS.—*Caput* discretum magnum. *Antennæ* birameæ, validæ.—Hab. in mari.

Sp. P. brevicaudis.

Tribus III. CYPRIDACEA (vel Ostracoda).

Corpus testâ bivalvi omnino tectum, posticè incurvatum, capite antennisque nunquam exclusis. *Pedes* nulli biremes nec natatorii. *Oculi* vel simplices vel compositi. *Antennæ* quatuor. [Membra cephalothoracis mandibularia, maxillaria, pediformiaque numero decem.]

Genus I. CYPRIS. (*Müller.*)—*Testa* integra ad frontem nec perforata nec incisa. *Oculus* unicus. *Antennæ anticæ* setigeræ, subnatatoriæ. *Antennæ posticæ* subpediformes, setigeræ. *Pedes mandibulares* 3–5-articulati. *Maxillæ* quatuor, breves. *Pedes* quatuor, duo uncinis longè confecti, duo sequentes graciles, 4–5-articulati, ad ova pertinentes. —Hab. in stagnis.

Sp. C. speciosa, albida, chilensis, pubescens, vitiensis.

Genus II. CYPRIDINA. (*Milne Edwards.*)—*Testa* breviter rostrata corpus omnino tegens, et clausa. *Oculi* duo compositi, remoti. *Antennæ anticæ* setis paucis inæquis ad apicem instructæ, setis rectis, sæpe divaricantibus, vix natatoriis. *Antennæ posticæ* 5–7 articulis brevissimis longè et plumosè setigeris confectæ. *Pedes mandibulares* 5-articulati, digitiformes, apicem unguiculati. *Maxillæ* sex, breves, breviter setigeræ, paris secundi laminam ciliatam ad basin gerentes, setis longis, plumosis. *Pedes* duo, longissimè vermiformes, omnino flexiles, ad ova pertinentes, ad apicem setis spinulosis partim reversis armati. *Abdomen* spinulis biseriatis confectum.—Hab. in maribus Pacifico et Atlantico.

Sp. C. luteola, punctata, olivacea, gibbosa, formosa.

SYN. Asterope, *Philippi.*

Genus III. CONCHÆCIA. (*Dana.*)—*Testa* interdum breviter rostrata, corpus omnino tegens, fronte apertâ. *Oculi* simplices. *Antennæ anticæ* 3–4-articulatæ, apicem longè setigeræ. *Spiculum* inter antennas sarcosum, simplex, exsertile. *Antennæ posticæ* 5–7-articulatæ, articulis brevissimis longè setigeris confectæ, ramo altero brevi. *Pedes man-*

dibulares fermè 5-articulati, non unguiculati, apice articuli primi interno et sæpius basi secundi interno simul corneis (instar mandibulæ) et denticulatis. *Maxillæ* quatuor. *Pedes* quatuor, tenues. *Abdomen* spinulis biseriatis confectum.—Hab. in maribus Pacifico et Atlantico.

Sp. C. agilis, rostrata, brevirostris, inflata.

SUBORDO 2. CORMOSTOMATA.

Os rostriformis.—Tribus quatuor sequentes:—

I. MONSTRILLACEA.—Corpus elongatum (Cyclopiforme). Maxillæ pedesque antici obsoleti. Pedes postici octo natatorii.

II. CALIGACEA.—Corpus sæpius depressum. Maxillæ pedesque toti numero 12–14, octo pedes ultimi plerumque natatorii, plurimi testâ tecti.

III. LERNÆACEA.—Corpus depressum aut vermiforme. Antennæ pedesque partim obsoleti.

IV. NYMPHACEA.—Corpus breve, araneiforme, abdomine obsolescente.

Tribus I. MONSTRILLACEA.

Genus MONSTRILLA. (*Dana.*)—*Cephalothorax* fere cylindricus, 4-articulatus. *Abdomen* 5–6-articulatum. *Antennæ* duæ. *Oculi* duo simplices; quoque oculus inferior sicut *Pontellis*. *Truncus buccalis* parvulus subconicus, maxillis pedibusve non munitus. *Pedes* octo, natatorii.—Hab. in mari "Sulu."

Sp. M. viridis.

Tribus II. CALIGACEA.

Familiæ quinque sequentes:—

1. ARGULIDÆ.—Corpus anticè latè peltatum. Ovarium externum nullum. Pedes antici largè tubulati, suctatorii.

2. CALIGIDÆ.—Corpus anticè latè peltatum. Ovarium externum tubiforme, rectum, ovis uniseriatis. Pedes quatuor antici subprehensiles. Antennæ posticæ carapace tectæ.

3. DICHELESTIDÆ.—Corpus depressum, valde angustum. Antennæ posticæ carapace non tectæ. Ovarium externum tubiforme, ovis uniseriatis.

4. ERGASILIDÆ.—*Corycæis* affines. Corpus vix depressum, plus minusve Cyclopiforme. Antennæ posticæ carapace non tectæ. Ovarium externum elongatum aut sacculiforme, ovis non uniseriatis.

5. NICOTHOIDÆ.—Corpus plerumque Cyclopiforme, sed e lateribus longissimè alatum. Ovarium externum sacculiforme, ovis non uniseriatis.

Familia II. CALIGIDÆ.

Subfamiliæ Caligidarum nobis sunt:—

1. CALIGINÆ.—Truncus buccalis subovatus, obtusus. *Maxillæ* trunco buccali remotiusculæ, posticè aculeo-elongatæ. *Tubum* ovigerum externum rectum. Corpus anticè latius. (Genera sunt *Caligus*, *Lepeophtheirus*, *Chalimus*, *Caligeria*, *Calistes*.)

2. PANDARINÆ.—Truncus buccalis tenuis acuminatus. Maxillæ ad truncum buccalem appressæ, parvulæ, lamellatæ. Tubum ovigerum externum rectum. Corpus posticè interdum latius. (Genera sunt *Pandarus*, *Trebius*, *Nogagus*, *Specilligus*, *Dinematura*, *Phyllophora*, *Euryphora*, *Lepidopus*.)

3. CECROPINÆ.—Truncus buccalis tenuis, acuminatus. Maxillæ ad truncum buccalem appressæ. Tubum ovigerum externum sub testam convolutum. Corpus posticè latius. (Genera sunt *Cecrops*, *Læmargus.*)

Caligaceorum segmenta corporis auctoribus sæpe malè data. Segmentum *abdominis* anticum, ovarium externum gestans, *thoracis* posticum sæpe vocatum.[*] In Cyclopaceis Caligaceisque ovarium externum ad segmentum secundum abdominis *normalem* semper pertinet. His animalibus et Cyclopaceis Crustaceisque aliis comparatis, affinitates veræ educentur. Tabula sequens, membris ordine enumeratis, hæc comparationem exhibet.

SEGMENTA.	ASTACUS.	LUCIFER.	CYCLOPS.	PONTELLA	CALIGUS.	PENILIA.	DAPHNIA.	CYPRIS.
1. *Cephalothoracis.*								
I.	Oculi	Oculi	00	00	00	00	00	00
II.	Ant. I.	Ant. I.	Ant. I.	Ant. I.	Ant. I.	Ant. I.	00	Ant. I.
III.	Ant. II.	Ant. II.	Ant. II.	Ant. II.	Ant. II.	Ant. II.	Ant. II.	Ant. II.
IV.	Mand.	Mand.	Mand.	Mand.	Mand.	Mand.	Mand.	Mand.
V.	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Max.
VI.	Max.	Max.	Maxd.	Maxd.	P. verg.	P. nat.	P. nat.	Maxd.
VII.	Maxd.	Maxd.	P. preh.	P. preh.	P. preh.	P. nat.	P. nat.	P. verg.
VIII.	Maxd.	Maxd.	P. nat.	P. nat.	P. nat.	P. nat.	P. nat.	P. ovar.
IX.	Maxd.	P.subnat.	P. nat.	P. nat.	P. nat.	P. nat.	P. nat.	00
X.	P. chel.	P.subnat.	P. nat.	P. nat.	P. nat.	P. nat.	P. nat.	00
XI.	P. verg.	P.subnat.	P. nat.	P. nat.	P. nat.	P. nat.	00	00
XII.	P. verg.	P.subnat.	0 vel 00	P. genit.	00	00	00	00
XIII.	P. verg.	0	00	00	00	00	00	00
XIV.	P. verg.	0	00	00	00	00	00	00
2. *Abdominis.*								
I.	P. rud.	P. rud.	0 vel P.rud.	0 vel 00	0 vel 00	P. rud.	0 vel P. rud.	0 vel 00
II.	P. rud.	P. rud.	0	0	0	0	0	0
III.	P. rud.	P. rud.	0	0	0	0	0	0
IV.	P. rud.	P. rud.	0	0	0	0	0	0
V.	P. rud.	P. rud.	0	0	0	0	0	0
VI.	Ap. caud.	Ap. caud.	Ap. caud.	Ap. caud.	Ap.caud.	Ap. caud.	Ap. caud.	Ap. caud.
VII.	0	0	00	00	00	00	00	00

In hâc tabulâ abbreviationes sequentes:—

Ant.	Antennæ.	*P.*	Pedes.	*Preh.*	Prehensiles.
Ap.	Appendices.	*Chel.*	Cheliformes.	*Ovar.*	Ovariani *vel* ovarium.
Mand.	Mandibulæ.	*Verg.*	Vergiformes.	*Rud.*	Rudimentarii.
Max.	Maxillæ.	*Nat.*	Natatorii.	*Caud.*	Caudales.
Maxd.	Maxillipedes.	*Subnat.*	Subnatatorii.		

0. Membra segmenti obsoleta.

00.. Segmentum ejusque membra simul obsoleta.

Subfamilia 1. CALIGINÆ.

Genus I. CALIGUS.—*Cephalothorax* 2-articulatus; segmento antico latè peltato, fronte discis duobus suctatoriis plerumque instructâ; postico parvulo, non alato. *Oculi* simplices pigmento unico conjuncti. *Antennæ posticæ* prehensiles, et extus basin spinâ crassâ sæpius munitæ. *Pedes* duo antici vergiformes, bifidi;[†] duo proximi sequentes subprehensiles digito acuto confecti; sex sequentes natatorii; duo reliqui simplices, vergiformes. Venter furculâ parvulâ armatus. *Abdomen* 2–3-articulatum, appendicibus caudalibus sublamellatis, marginem setigeris. [Sexus antennas posticas, pedes paris secundi et formam abdominis, valde dissimiles.]

Sp. C. thymni, productus, gracilis, (Lepeophtheirus) bagri.

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[*] Vide "*Hist. Nat. des Crustaces,* par M. Milne Edwards," iii, 445 et seq.

[†] Extremitas bifida articulo tertio et apice secundi elongato composita.

Genus II. CALISTES. (*Dana.*)—*Caligo* similis. *Cephalothorax* 2-articulatus, segmento postico non alato. *Pedes duo postici* biramei, subnatatorii.

Trebio affinis, sed cephalothorax non 3-articulatus et maxillæ nec lamellares, nec ad truncum buccalem appressæ.

Sp. C. trigonis.

Genus III. CALIGERIA. (*Dana.*)—*Caligo* similis. *Cephalothorax* 2-articulatus, segmento postico bialato. *Pedes duo postici* biramei, setis brevibus, non natatoriis.

Sp. C. bella.

Subfamilia 2. PANDARINÆ.

Genus I. NOGAGUS. (*Leach.*)—*Cephalothorax* 4-articulatus, fronte arcuatâ, segmento secundo ad latera posticè producto, duobus sequentibus non alatis. *Abdomen* stylis brevibus sublamellatis setigerisque confectum. *Oculi* simplices, remotiusculi: (an quoque oculus subtilissimus intermedius?). *Pedes* paris secundi crassè cheliformes; pedes natatorii octo, grandes.

Sp. N. validus.

Genus II. SPECILLIGUS. (*Dana.*)—*Nogago* segmenta cephalothoracis pedesque affinis. *Oculi* duo remotiusculi, et *conspicillis grandibus* instructi, eisque Sapphirinæ similes.

Sp. S. curticaudus.

Genus III. PANDARUS. (*Leach.*)—*Cephalothorax* 4-articulatus, carapace grandi, segmentis sequentibus transversis, secundo ad latera alatè producto, tertio quartoque posticè alatis, et bilobatis. *Abdomen* 2–3-articulatum, segmento ultimo tecto, secundo posticè rotundato et utrinque stylis caudalibus sæpius munito. *Pedes* paris secundi crassè cheliformes; natatorii octo, setis brevissimis. *Oculi* duo, remotiusculi. *Styli caudales* styliformes, acuti, subnudi.

Sp. P. concinnus, satyrus, brevicaudus.

Genus IV. DINEMATURA. (*Latreille.*)—*Cephalothorax* 3-articulatus, segmento secundo parvo, testâ tertii dorsali posticè valde expansâ et profundè bilobatâ, eoque elytroideâ. *Abdomen* 2-articulatum, carapace paulo angustius, oblongum, segmento antico maximo, posticè bilobato, postico parvulo, celato. *Styli caudales* lamellati, terminales.

Sp. D. braccata.

Genus V. LEPIDOPUS. (*Dana.*)—*Corpus* anticè non latius. *Cephalothorax* 3-articulatus, carapace minore quam abdomen, segmentis duobus sequentibus posticè largè bialatis. *Abdomen* 2-articulatum, segmento postico parvulo, celato, antico maximo et posticè bilobato. *Antennæ posticæ* articulo tenui falciformi confectæ. *Pedes paris secundi superficie terminali latâ prehensili squamatâ instructi. Pedes natatorii* quatuor ultimi similes, latè lamellati.

Sp. L. armatus.

Tribus IV. NYMPHACEA.

Genus ASTRIDIUM. (*Dana.*)—*Pycnogono* affinis. *Caput* duobus maxillipedibus subtus instructum parvulis, debilibus, ad apicem obtusis, non prehensilibus. *Pedes* octo unguiculo confecti. *Abdomen* perbreve.

Sp. A. orientale.

Mr. Adam [illegible]   XX.

With the respects of
The Author

APPENDIX.

On the Classification of the Crustacea Choristopoda or Tetradecapoda; by James D. Dana.

The term Choristopoda, applied to the Tetradecapods, alludes to the subdivision of the thorax into segments, each devoted to a separate pair of legs; this is a prominent peculiarity of the species, distinguishing them from all the Podophthalmia, and with rare exceptions from the Entomostraca.

This division of Crustacea is subdivided by Latreille and other subsequent authors into three groups, the *Amphipoda*, *Læmipoda* and *Isopoda.* Kröyer has suggested that the Læmipods are essentially Amphipods in structure, and his investigations have shown that in the only important distinction between them, that based upon the abdomen, the two groups are united by gradual transitions. In the organs of the mouth, they are the same,—also in having thoracic branchial appendages and in the position of the thoracic legs; and moreover the abdominal appendages conform to the same type, as is seen when the abdomen in the Caprellidæ is partly elongated, as in the genus Cercops of Kröyer.

Rejecting the division Læmipoda, the number of tribes is reduced to two. There is however a third tribe, which hitherto has not been recognized. It is intermediate in its characteristics between the Amphipods and Isopods.

The Amphipoda are uniformly characterized by having—

1. The three posterior pairs of thoracic legs thrown backward and more or less obliquely outward, and constituting one series, while the four anterior pairs are thrown forward and outward, in another series; this arrangement may be represented by the figures 4 : 3, (or 2+2 : 3, as the four pairs of the first series are often in two sets of two pairs each).
2. The branchial appendages thoracic.
3. The abdominal members in two sets, the three anterior pairs subnatatory, the three posterior styliform—an arrangement represented by the figures 3 : 3.

The true Isopoda, on the contrary, have—

1. The four posterior pairs of thoracic legs in the backward series, and three anterior pairs in the forward series—3 : 4.
2. The branchial organs abdominal.
3. The abdominal members in two sets, the 5 anterior pairs branchial (the first sometimes operculiform), and only the last styliform—5 : 1.

These are two distinct types of structure of fundamental character; and any species which do not partake of these peculiarities are intermediate forms and are naturally arranged in a separate group. These constitute the tribe here named

The ANISOPODA.

1. Like *Amphipoda*, the three posterior pairs of thoracic legs are in one series, and the four anterior in a different series or usually in sets of two pairs each ;—4(or 2+2) : 3.
2. Like *Isopoda*, the three posterior pairs of abdominal members are not styliform, only the last pair being of this character ; the branchial organs are abdominal and not thoracic, with a rare exception.

These are constant characteristics of the whole group. Although strongly *Amphipodan*, the species have in general more external resemblance to the *Isopods ;* yet the intermediate character of some genera is so obvious that they have been arranged in the former group by one author and in the latter by another.

The genera that pertain to this tribe, Anisopoda, are the following: *Arcturus* and the allied *Anthura*, *Tanais*, *Apseudes*, *Rhœa*, *Praniza*, *Anceus*, *Serolis*, *Bopyrus* and allied. Each of the larger subdivisions of the Isopoda, as laid down by Edwards, affords one or more genera, and they are genera which in his system are in some instances marked off as anomalous in character.

In *Arcturus* and *Anthura*, the *thoracic* members have the Amphipod character, the series being 4 (or 2+2) : 3, and not 3 : 4 as in the Isopods. The abdominal appendages are like those of Idotæa.

In *Tanais*, there is the same arrangement. The abdominal appendages are Isopodan in being characterized by the series 5 : 1, but the 5 anterior are elongated and subnatatory, the abdomen is more flexibly articulated, approximating to the Amphipods ; the 6th pair is a pair of stylets. *Apseudes* and *Rhœa* are closely like Tanais, and actually more resemble Amphipods than Isopods. The abdomen is more elongated, and differs from the Amphipodan abdomen mainly in having but one pair of stylets with 5 pairs of subnatatories instead of three of stylets and three of natatories.

Praniza and *Anceus* have the thoracic legs Amphipodan in their arrangement. The abdomen in Praniza is considerably elongated and flexible, approaching the Amphipodan ; but the arrangement of its appendages is Isopodan.

In *Serolis*, although the general aspect of the species is strikingly Isopodan, the arrangement of the thoracic legs is Amphipodan. Further than this, the abdomen is partly Amphipodan, for instead of the series 5 : 1, it has the series 3 : 3 ; yet while the 3 anterior pairs are natatory as in the Amphipoda, the next two, instead of being styliform, like the last, are branchial (one opercular to the other), and in this particular they are Isopodan.

In the *Bopyri*, the thoracic legs are so arranged in a single continuous series, that it is difficult to make out the series 4 : 3 or 3 : 4. Yet in some figures, the former (the Amphipodan) arrangement is indicated. The males are closely like Tanais in some instances, both in the length of the abdomen, its free articulations and its appendages.* In a female not adult of the *Bopyrus abdominalis*, figured by Kröyer,† all the thoracic legs of one side are obsolete excepting the 3 posterior, a fact pointing to the Amphipod arrangement 4 : 3. Rathke's figure of the "*Phryxus Hippolytes*"[*] represents a male with the 3 posterior legs either side thrown backward and the 4 anterior forward, confirming the same view.

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* See Kröyer, in Voy. Scand., pl. 28, fig. 1 A., *Dajus Mysidis.*

† Ibid. pl. 29, fig. 1*l*.

In *Ione*, there are *thoracic* branchial appendages, which is a wide divergence from the Isopoda. In view of these facts, we conclude that the Bopyri are properly Anisopods. The resemblance in habit to the Cymothoidæ is no objection, for we find this habit also in the Cyami, species still more remote. In fact, the male Bopyri show that the species in all essential points of structure, are nearest to Jæra and Tanais. Moreover the Jæræ are mostly parasitic.

The genera *Crossurus*, and *Liriope* of Rathke[†] are near Tanais, though also related in form to male Bopyri. In Liriope the thoracic legs are grouped as in Tanais, and the abdominal appendages are subnatatory or nearly Amphipodan in structure, although, like Tanais, diverse from true Amphipods in having 5 pairs subnatatory, and only one pair of stylets. Liriope is referred to the Amphipoda by Rathke. Cryptothir is the name of another related genus, a species of which was found by the author in the cavity of a living barnacle (Creusia).

We therefore adopt as the grand divisions of the Choristopoda, the three tribes, ISOPODA, ANISOPODA and AMPHIPODA.

It is an important fact, the basis of a philosophical principle, that the most sluggish and most stupid of the Decapods are found in the transition group, Anomoura. So in the Tetradecapods, the transition group, *Anisopoda*, contains those species of the order that are lowest in activity and structural perfection; for the Bopyri, the females especially, when mature, are nearly memberless, motionless and senseless.

The *Isopoda* seem to have the same relation to the *Amphipoda* that the *Brachyura* have to the *Macroura*, and are the higher in rank.

Tribe I. *Isopoda.*—The Isopoda thus stripped of genera that are not properly of the tribe, are naturally divided into three subtribes, as follows:—

Subtribus I. IDOTÆIDEA.—Appendices abdominales duæ posticæ bene operculiformes, appendices alias optime tegentes.

Subtribus II. ONISCOIDEA.—Appendices abdominales duæ posticæ styliformes et non operculiformes, fere terminales, raro obsoletæ.

Subtribus III. CYMOTHOIDEA.—Appendices abdominales duæ posticæ lamellatæ, apud abdominis latera dispositæ.

Tribe 2. *Anisopoda.*—Among the Anisopoda, we find the three subtribes of the Isopoda represented. Allied to the *Idotæidea*, there are *Arcturus*, *Leachia*, *Anthura*; allied to the *Oniscoidea*, the genera *Tanais*, *Apseudes*, *Bopyrus* and others related; allied to the *Cymothoidea*, the genera *Serolis*, *Praniza*, &c. Praniza is an aberrant form, abnormal in the number of its legs. The three grand divisions are hence as follows:—

Subtribus I. SEROLIDEA, vel ANISOPODA CYMOTHOICA.—Appendices duæ posticæ abdominales lamellatæ, apud abdominis latera dispositæ.

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[*] Fauna Norwegens, pl. 2, f. 3.

[†] Fauna Norwegens, pp. 35 and 60, pl. 1.

Subtribus II. Arcturidæ, vel Anisopoda Idotæica.—Appendices duæ posticæ abdominales lamellatæ et bene operculiformes, appendices branchiales tegentes.

Subtribus III. Tanaidea, vel Anisopoda Oniscica.—Appendices duæ posticæ abdominales plus minusve styliformes, subterminales, interdum obsoletæ.

Tribe 3. *Amphipoda.*—The Amphipoda contain two prominent divisions, distinguished by the organs of the mouth, the eyes and general habit, the Gammarus and Hyperia sections, as laid down by Edwards. The addition of the Læmipoda to the Amphipoda introduces a third division. The sections are hence :—

Subtribus I. Caprellidea.—Maxillipedes elongati, palpiformes. Caput oculique mediocres. Abdomen obsolescens.

Subtribus II. Gammaridea.—Maxillipedes elongati, palpiformes. Caput oculique mediocres. Abdomen appendicibus sex natatoriis sexque styliformibus instructum.

Subtribus III. Hyperidea.—Maxillipedes abbreviati, lamellati, operculiformes. Caput grande, oculorum corneis plerumque tectum. Appendices abdominales ac in *Gammarideis*, latius lamellatæ.

The Caprellidea have the habit of certain of the Anisopoda, and their short abdomen calls to mind the Isopoda. They therefore properly stand first among the Amphipoda. The Caprellids like the species of Arcturus and Tanais, cling and stand upon seaweeds, etc., by their six hinder legs, while the body and the other legs are extended, for the purpose of capturing their food and conveying it to the mouth.

In the following synopsis of the Families, Subfamilies and Genera, some new genera are included, discovered by the author in the course of the cruise of the Exploring Expedition under Capt. Wilkes.

TRIBUS I.

ISOPODA.

Subtribus I. IDOTÆIDEA.*

Fam. I. IDOTÆIDÆ.

Pedes fere consimiles, plus minusve ambulatorii.

G. 1. Idotæa, *Fabr.*—Antennæ externæ longiores, flagello multiarticulato confectæ.

G. 2. Edotea, *Guerin.*—Antennæ externæ internis parce longiores, flagello pauciarticulato confectæ, basi paulo longiore quam basis internarum.

G. 3. Erichsonia, *Dana.*—Antennæ externæ internis multo longiores, geniculatæ, 6-articulatæ, flagello carentes. Pedes subæqui consimiles.

G. 4. Cleantis, *Dana.*—Antennæ externæ multo longiores, 5–6-articulatæ, non geniculatæ, flagello carentes. Pedes 4ti 3tiis valde breviores, et 4ti 5ti 6ti 7mi longitudine sensim increscentes. Abdominis opercula laminam appendiculatam ad articulationem gerentia.

G. 5. Epelys, *Dana.*—Antennæ breves, longitudine subæquæ; externæ flagello carentes, non geniculatæ. Pedes subæqui.

Fam. 2. CHÆTILIDÆ.

Pedes 6ti longissimi, setiformes et multi-articulati.

G. 1. Chætilia, *Dana.*—Antennæ 1mæ longiores, superiores, 2dæ flagello multiarticulato confectæ. Pedes 7mi breves, non unguiculati. Abdominis opercula laminam appendiculatam ad articulationem gerentia.

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* The genera *Erichsonia*, *Cleantis*, *Epelys* and *Chætilia*, are described by the author in this Journal, [2,] viii, 424, 1849.

Subtribus II. ONISCOIDEA.

Fam. I. ARMADILLIDÆ.[*]

Corpus bene convexum, stricte articulatum. Abdomen multi-articulatum, segmento ultimo parvo. Appendices caudales[†] ultra abdomen non exsertæ, lamellatæ. Mandibulæ non palpigeræ. Antennæ internæ inconspicuæ.

Subfam. 1. TYLINÆ.[‡]—Appendices caudales infra abdominis segmentum posticum celatæ et operculiformes.

G. 1. Tylus, *Latreille.*

Subfam. 2. ARMADILLINÆ.[§]—Appendices caudales inter duo abdominis segmenta postica partim visæ.

G. 1. Armadillo,[‖] *Latr.*, partim, *Brandt*, *Edw.*—Basis appendicum caudalium grandis, ramo interno parvulo, altero obsoleto.

G. 2. Spherillo, *Dana.*—Basis appendicum caudalium grandis, ramo interno parvulo, externo parvulo, in latere basis interiore versus apicem insito.

G. 3. Armadillidium.[¶] *Brandt.*—Basis appendicum caudalium brevis, ramo externo lato, terminali, interno parvulo.

G. 4. Diploexochus, *Brandt.*—*Armadilloni* appendicibus caudalibus similis. Segmenta thoracis processu horizontali utrinque armata.

Fam. II. ONISCIDÆ.

Corpus sæpius minus convexum, vel stricte vel laxe articulatum. Abdomen multi-articulatum, segmento ultimo parvo. Appendices caudales valde exsertæ, styliformes. Mandibulæ non palpigeræ. Antennæ internæ inconspicuæ.

Subfam. 1. ONISCINÆ.[**]—Maxillipedes 3-articulati, articulis duobus ultimis brevibus et parvulis. Antennæ externæ ad articulationem 5tam bene geniculatæ. Basis appendicum caudalium perbrevis, duos stylos multum inæquos gerens, stylo interno sub abdomine partim celato.

G. 1. Oniscus, *Linn.*—Antennæ externæ subcylindricæ, ad basin fronte partim tectæ. Flagellum 1–3-articulatum,[††] articulo precedente vix brevius vel longius.

Subgen. 1. Trichoniscus, *Brandt.*[‡‡]—Antennæ externæ 6-articulatæ.
Subgen. 2. Porcellio, *Latr*—Antennæ externæ 7-articulatæ.
Subgen. 3. Oniscus, *Latr.*—Antennæ externæ 8-articulatæ.

G. 4. Philoscia. *Onisco* affinis. Antennæ externæ usque ad basin apertæ, 7-articulatæ, subcylindricæ. Flagellum ac in *Porcellione.*

G. 5. Platyarthrus, *Brandt.*—Antennæ externæ quoad articulum 5tum latæ, latere externo dilatatæ.

G. 6. Deto, *Guerin.*—Flagellum antennarum externarum perbreve, 4-articulatum, articulo precedente multo brevius, articulo 5to cylindrico.

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[*] *Armadillidæ*, Koch, Deutschl. Crust., 34th Heft, 1840; also Cat. Brit. Crust. Brit. Mus, 1850, p. 73.

[†] Appendices normales abdominis 6tæ nobis denominatæ *appendices caudàles;* segmentum abdominis ultimum *segmentum caudale* est.

[‡] *Tylosiens*, Edw.

[§] *Armadilliens*, Edw.

[‖] *Pentheus*, Koch.

[¶] *Armadillo*, Koch, et Latr. partim.

[**] *Porcellioniens*, Edw. *Porcellionidæ*, Cat. Brit. Crust. Brit. Mus., 1850. We deem it better to derive the family name from the *older* generic name, Oniscus.

[††] Præter hos tres articulos, flagellum articulis minutis 1–3 inconspicuis ad extremitatem confectum, ultimo styliforme et apice setigero.

[‡‡] *Itea*, Koch.

Subfam. 2. SCYPHACINÆ.—Maxillipedes 2-articulati, articulo 2do lamellato. Antennæ externæ ad articulationem 5tam non geniculatæ. Styli caudales ac in *Oniscinis.* Basis appendicum caudalium aut brevis aut oblongus, ramo interno interdum omnino aperto.

G. 1. Scyphax, *Dana.*—Flagellum antennarum 1–3-articulatum.
G. 2. Styloniscus, *Dana.*—Flagellum antennarum tenue, multi-articulatum.

Subfam. 3. LYGINÆ.—Maxillipedes 4-articulati, elongati. Antennæ externæ ad articulationem 5tam non bene geniculatæ. Styli caudales longi, basi longè exserto, ramis setiformibus, subæquis et æque apertis.

G. 1. Lygia, *Fabr.*—Basis appendicum caudalium apice simplex, ramosque duos simul gerens.
G. 2. Lygidium, *Brandt.*[*]—Basis appendicum caudalium apice furcatus, brachio utroque ramum setiformem gerente.

Fam. 3. ASELLIDÆ.

Corpus sæpius plus depressum et laxè articulatum. Abdomen 6-articulatum, segmento ultimo grandi, scutellato. Appendices caudales styliformes, interdum brevissimæ. Mandibulæ palpigeræ. Antennæ internæ conspicuæ.

Subfam. 1. LIMNORINÆ.—Abdomen 5–6-articulatum.

G. 1. Limnoria.—Segmenta abdominis duo postica grandia, simul sumta scutellata.

Subfam. 2. ASELLINÆ.—Abdomen 1–2-articulatum.

1. *Pedes thoracici subæqui.*

G. 1. Jæra, *Leach.*—Appendices caudales perbreves; branchiales laminâ impari tectæ.
G. 2. Jæridina, *Edw.*—Appendices caudales perbreves; branchiales apertæ.
G. 3. Asellus, *Geoffroy.*—Appendices caudales elongatæ. Pedes antici subchelati.
G. 4. Janira, *Leach.*[†]—*Asello* affinis. Pedes toti unguiculati, ungue bifido.
G. 5. Henopomus, *Kröyer.*[‡]—Pedes 1mi subchelati, digito 2-articulato; reliqui ambulatorii, articulo 6to sub-rudimentario. Appendices branchiales laminâ unicâ permagnâ tectæ. Thoracis segmenta latere incisa et dentata.

2. *Pedes posteriores valde elongati.*

G. 6. Munna, *Kröyer.*[§]—Appendices caudales rudimentariæ. Pedes antici crassiores, subchelati; posteriores corpore multo longiores.

Subtribus III. CYMOTHOIDEA.

[The Cymothoidea correspond nearly to the *Isopodes nageurs* of Edwards.[||] The subtribe thus embraces along with Edwards's "Cymothoadiens" (Serolis excluded) his "Spheromiens." The *Cymothoa*, *Æga* and *Spheroma* sections are closely related, and constitute a single natural group. The *first* (*Cymothoidæ*) has the antennæ attached to the under surface of the head somewhat remote from the front margin, and the caudal stylets are free; the *second* (*Ægidæ*) has the antennæ

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[*] *Zia*, Koch.
[†] *Oniscoda*, Latreille.
[‡] Nat. Tidsskr., [2], ii, 1847.
[§] Ibid. ii, 1838, 1839, p. 612 and [2], ii, 1847.
[||] The exceptions consist in our removal of his *Pranisiens*, and the genus *Serolis*, to the Anisopoda.

attached to the front of the head, with the caudal stylets free; the *third* (*Spheromidæ*) has the antennæ attached to the front of the head, with the inner lamina of the caudal stylets united to the abdomen. In the Cymothoidæ, the legs are all ancoral and the caudal stylets and branchiæ are not ciliated; in the Ægidæ and Spheromidæ, only the two or three anterior pairs of legs are ancoral, if any, and the caudal stylets and branchiæ are commonly ciliated. A single genus of the Cymothoidæ (*Ægathoa*) has the habit of Æga and ciliated caudal stylets, with the antennæ and ancoral legs of Cymothoa. This ciliation of the lamellar abdominal appendages appears to be a mark of degradation in the species, and is strikingly characteristic of the abdominal natatory feet of the Amphipoda. The family Ægidæ contains two groups, distinct in habit; one (*Æginæ*) often parasitic, having the 6 anterior legs ancoral, the other (*Cirolaninæ*) not parasitic, and with none of the legs ancoral.]

Fam. I. CYMOTHOIDÆ.*

Maxillipedes breves, 3–4-articulati, operculiformes, articulis terminalibus angustis brevibus. Appendices caudales liberæ, marginibus rarissimè ciliatæ. Antennæ sub capite infixæ. Abdomen 4–6-articulatum, segmentis anterioribus raro connatis. Pedes toti ancorales. Branchiæ sæpissime non ciliatæ. Epimeræ conspicuæ.

Subfam. 1. CYMOTHOINÆ.—Lamellæ caudales nudæ. Abdomen multiarticulatum, segmentis liberis.

G. 1. Cymothoa, *Fabr.*—Femora lata, posteriora latissima. Segmenta thoracis 2 3ve postica multo breviora nunquam latere acutè producta. Segmentum caudale sæpissimè valde transversum. Antennæ graciles; 1mæ ad basin paulo remotæ.

G. 2. Ceratothoa,† *Dana.*—*Cymothoæ* affinis. Antennæ 1mæ crassæ basi conjunctæ. Caput postice latum, fronte productum et sæpe angustum.

G. 3. Livoneca, *Leach.*—Femora latiuscula, 6ta vel 7ma 5tis vix latiora, non angustiora. Segmenta thoracis 3tium 4tum 5tum 6tumque fere æqua, 7mum paulo brevius. Abdomen thorace subito vix angustius. Caput parvulum. Frons non involutus et in processum inter-antennalem conspicue non productus. Segmentum caudale vix transversum. [Corpus sæpe oblique distortum.]

G. 4. Anilocra, *Leach.*—Femora angusta, posteriora angustiora. Segmentum thoracis 2dum 3tium 4tumve 5to 6to 7move multo brevius. Abdomen thorace subito angustius, segmentis processu laterali spiniformi infra non instructis, ultimo vix transverso.

Subgen. 1. Anilocra.—Rami appendicis caudalis multo inæqui.
Subgen. 2. Canolira, *Leach.*—Rami appendicis caudalis subæqui.

G. 5. Nerocila, *Leach.*—Femora et segmenta thoracis ac in *Anilocrâ*. Abdomen thorace subito angustius, segmentis processu laterali spiniformi infra instructis, ultimo vix transverso.

G. 6. Olencira, *Leach.*—Femora latitudine mediocria. Segmenta thoracis 3 postica anterioribus non longiora. Abdomen thorace subito multo angustius, segmentis cum processubus spiniformibus infra non instructis, ultimo non transverso.

Subfam. 2. OROZEUKTINÆ.—Segmentum abdominis posticum ac in *Cymothoâ;* segmenta alia coalita et non libera.

G. 2. Orozeuktes, *Edw.*

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* *Cymothoadiens Parasites*, Edw. Crust., iii, 228, 247.

† *Cymothoa Gaudichaudii* et *C. parallela* hîc pertinent.

Subfam. 3. ÆGATHOINÆ.—Lamellæ caudales ciliatæ. Abdomen multiarticulatum, segmentis liberis.

G. 1. Ægathoa, *Dana.*—Abdomen thoracis subito non angustius, segmentis subæquis. Caput subtriangulatum, latum, thorace parce angustius. Oculi grandes.

Fam. II. ÆGIDÆ.*

Maxillipedes elongati, 4–6-articulati, articulis totis lamellatis, terminalibus latis et brevibus. Appendices caudales liberæ, marginibus ciliatæ. Antennæ ad frontis marginem capitis affixæ, apertæ. Abdomen 4–6-articulatum. Pedes 6 antici interdum ancorales aut prehensiles, sæpius simpliciter unguiculati, 8 postici unguiculati et nunquam ancorales. Branchiæ ciliatæ. Epimeræ conspicuæ.

Subfam. 1. ÆGINÆ.—Pedes 6 antici ancorales, unguibus validis; reliqui unguibus parvulis confecti.

G. 1. Æga, *Leach.*—Pedes 6 antici æque ancorales. Antennæ 1mæ basi contiguæ, 2dæ per epistomatis processum sejunctæ. Frons capitis non saliens.

Subgen. 1. Æga.—Oculi remoti. Antennæ 1mæ basi complanatæ.

Subgen. 2. Conilera, *Leach.*—Oculi remoti. Antennæ 1mæ basi subcylindricæ.

Subgen. 3. Rocinela, *Leach.*—Oculi grandiores, inter se contiguæ. Antennæ 1mæ basi complanatæ.

G. 2. Acherusia, *Lucas.*†—*Ægæ* affinis. Antennæ 2dæ per processum non sejunctæ. Frons capitis saliens.

G. 3. Pterelas, *Guerin.*—*Ægæ* affinis. Pedes 2di 3tii sæpeque 1mi subdidactyli, processu e articulo penultimo instar digiti immobilis, processu sive acuminato sive acie instructo.

Subfam. 2. CIROLANINÆ.—Pedes nulli ancorales.

G. 1. Cirolana, *Leach.*‡—Segmenta thoracis subæqua. Pedes unguibus parvulis confecti. Antennæ 2dæ per processum epistomatis tenuem sejunctæ. Abdomen 6-articulatum.

G. 2. Corallana, *Dana.*—Segmenta thoracis subæqua. Pedes unguibus parvulis confecti. Antennæ 2dæ epistomate transverso latissimè sejunctæ et partim tectæ, epistomate antennisque 1mis latè conniventibus.

G. 3. Alitropus, *Edw.*—Segmenta thoracis 3 postica anterioribus longiora, ac in *Nerocila.* Pedes unguibus crassiusculis confecti.

Fam. III. SPHEROMIDÆ.§

Maxillipedes elongati 5–6-articulati et palpiformes. Appendices caudales margini abdominis laterali conjunctæ. Antennæ ad frontis marginem capitis affixæ, apertæ. Abdomen 1–2-articulatum. Pedes non ancorales (raro 4 antici ancorales). Branchiæ ciliatæ. Epimeræ non distinguendæ.

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* *Cymothoadiens errans,* Edw. Crust., iii, 238.—*Ægidæ,* Cat. Brit. Crust. Brit. Mus., 1850, p. 78.

† Expl. de l'Algiers, pl. 8, f. 3.

‡ Genera *Eurydice* et *Nelocira,* Leach, inclusa cum Cirolanâ. Eurydice discrepat abdomine 5-articulato tantum.

§ *Spheromiens onguiculés,* Edw. Crust., iii, 199.—*Spheromidæ,* Cat. Brit. Crust. Brit. Mus., 1850, p. 75.

Subfam. 1. SPHEROMINÆ.—Lamella appendicis caudalis externa sub internâ se latens.

1. Corpus in globum contractile.

G. 1. SPHEROMA, *Latr.*—Lamellæ appendicis caudalis subæquæ.

2. Corpus in globum non contractile.

G. 2. CYMODOCEA, *Leach, Edw.**—Caput valde transversum, multo convexum. Lamellæ appendicis caudalis subæquæ.

G. 3. CERCEIS, *Edw.*—Caput parce transversum, subtriangulatum, vix convexum. Antennæ 1mæ quoad basin capite tectæ, processu non sejunctæ.

G. 4. CASSIDINA, *Edw.*—Corpus latum; caput valde transversum. Lamellæ appendicis caudalis angustæ, valde inæquæ, externâ parvulâ. Antennæ 1mæ quoad basin processu frontis sejunctæ.

G. 5. AMPHOROIDEUM, *Edw.*—Antennæ quoad basin lamellate portentose productæ ultra capitis frontem.

Subfam. 2. NESÆINÆ.—Lamella appendicis caudalis externa saliens, sub internâ se non latens, usquam aperta. Pedes nulli ancorales.

G. 1. NESÆA, *Leach, Edw.*†—Lamella caudalis externa recta.

G. 2. CAMPECOPEA, *Leach.* Lamella caudalis externa arcuata.

Subfam. 3. ANCININÆ.—Pedes 4 antici ancorales.

G. 1. ANCINUS, *Edw.*—Appendices caudales unâ lamellâ oblongâ saliente basique brevissimo instructæ.—An tribus Anisopodorum est genus Ancinus?

TRIBUS II.

ANISOPODA.

Subtribus I. SEROLIDEA, vel ANISOPODA CYMOTHOICA.

Fam. I. SEROLIDÆ.

Appendices abdominales sex anticæ liberæ, subnatatoriæ, quatuor sequentes branchiales, bene lamellatæ, ultimæ ac in *Cymothoadis.* Antennæ 1mæ sub capite insitæ.

G. 1. SEROLIS, *Leach.*

Fam. II. PRANIZIDÆ.‡

Appendices abdominales totæ ac in *Ægidis.* Antennæ 1mæ sub capite insitæ. Pedes thoracis numero decem, paribus duobus anticis rudimentariis. Thoracis segmenta numero quinque non superantia.

Subfam. 1. PRANIZINÆ.—Caput parvum. Mandibulæ vix salientes.

G. 1. PRANIZA, *Leach.*

Subfam. 2. ANCEINÆ.—Caput grande. Mandibulæ ultra caput longè exsertæ.

G. 1. ANCEUS, *Risso.*

Subtribus II. ARCTURIDEA, vel ANISOPODA IDOTÆICA.

Fam. I. ARCTURIDÆ.

Subfam. 1. ARCTURINÆ.—Opercula abdominis ad ventrem stricte appressa.

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* Genus *Dynamena,* Leach, is included.

† Genus *Cilicæa,* Leach, is included.

‡ *Pranisiens,* Edw. Crust. iii, 92.

G. 1. Arcturus, *Latr.*—Segmenta thoracis subæqua. Antennæ 2dæ flagello longo confectæ.
G. 2. Leachia, *Johnston.*—Segmentum thoracis 4tum prælongum. Antennæ 2dæ longæ, ungue 1–3-articulato confectæ. Pedes 8 antici ciliati, non unguiculati.

Subfam. 2. ANTHURINÆ.—Opercula abdominis ad ventrem non bene appressa, sed libera et latera abdominis partim tegentia.

G. 1. Anthura, *Leach.*—Antennæ breves, 4–8-articulatæ. Pedes antici subchelati.

Subtribus III. TANAIDEA, vel Anisopoda Oniscica.

Fam. 1. TANAIDÆ.

Pedes 1mi 2dive subchelati, sequentes non ancorales. Abdomen paribus 5 appendicum subnatatoriis unoque postico stylorum instructum.

Subfam. 1. TANAINÆ.—Corpus lineare, segmento thoracis 1mo sæpe oblongo capiteque parvulo. Styli caudales longo.

G. 1. Tanais, *Edw.*[*]—Antennæ 1mæ flagello non confectæ. Pedes antici breves, crassè chelati, reliqui unguiculati. Styli caudales sat longi, 3–7-articulati, simplices.
G. 2. Paratanais, *Dana.*—*Tanai* similis. Styli caudales biramei, ramis inæquis, articulis uno vel pluribus instructis. Pedes antici breves.
G. 3. Leptochelia, *Dana.*[†]—Antennæ 1mæ longæ, flagello confectæ. Pedes antici longi, digitis hiantibus; reliqui unguiculati. Styli caudales sat longi, articulati, ramo laterali instructi.
G. 4. Apseudes, *Leach.*—Antennæ 1mæ 2dæque flagello unico confectæ. Pedes antici breves, crassè chelati, 2di extremitate laminati, non unguiculati.
G. 5. Rhœa,[‡] *Edw.*—Antennæ 1mæ 2dæque flagello confectæ, 1mis quoque flagello appendiculari. Pedes 1mi 2dique crassi, 1mis chelatis, 2dis unguiculatis.

Subfam. 2. LIRIOPINÆ.—Corpus antice latius, postice sensim angustans, segmento thoracis 1mo reliquis vix longiore, capite sat grandi. Appendices abdominales numero decem elongatæ.

G. 1. Liriope, *Rathke.*[§]—Pedes 4 antici subprehensiles, 5ti 6tique unguiculati, 7mi abbreviati, articuloque styliformi confecti. Antennæ 1mæ perbreves [setarum scopulâ ornatæ].
C. 2. Cryptothir, *Dana.*—*Liriopi* affinis. Pedes 7mi non abbreviati, unguiculati.

Subfam. 3. CROSSURINÆ.—Corpus antice latius, postice sensim angustatum, segmento thoracis 1mo vix longiore, capite sat grandi. Appendices abdominales inferiores numero sex, ciliatæ.

G. 1. Crossurus, *Rathke.*[‖]—Pedes antici chelati, robusti, reliquis unguiculatis. "Abdomen duabus tæniis semicircularibus e magno pilorum erectorum numero compositis fimbriasque duas exhibentibus cinctum."

Fam. II. BOPYRIDÆ.[¶]

Pedes toti plerumque aliquo modo subprehensiles vel ancorales. *Maris*, corpus angustum, abdomen 1–6-articulatum, appendicibus subnatatoriis stylisque duobus sæpe instructum, interdum totis appendicibus obsoletis; *feminæ*, corpus latum et obesum, oculis carens, et quoad pedes sæpe partim obsoletum.

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[*] Genus *Zeuxo*, Templeton, (Trans. Ent. Soc., ii, 203,) is included.

[†] Amer. J. Sci. [2], iii, 425, 1849. Here falls *Tanais Edwardsii*, Kr. (Tids. iv, 1842.)

[‡] Genus *Triura*, Tellkampf (Archiv. f. Nat., 1844, p. 321) Rhœæ forsan affinis. Styli caudales longissimi et setiformes. Speciei descriptio et icon non bonæ.

[§] Faun. Norw., 60, pl. 1, f. 8–12.

[‖] Ibid. 35, pl. 1, f. 1–7.

[¶] *Epicarides*, Latr.; *Isopodes sedentaires*, Edw. Crust., iii, 277.

Subfam. 1. BOPYRINÆ.—Thorax appendicibus branchialibus carens.

G. 1. BOPYRUS, *Latr.*—Pedes thoracis *feminæ* manu imperfectâ confecti. Appendices abdominis branchiales laminatæ, laminâ unicâ compositæ et abdomine tectæ.

G. 2. PHRYXUS, *Rathke.*[*]—Pedes thoracis *maris* ancorales, *feminæ* manu imperfectâ confecti. Appendices abdominis *feminæ* branchiales magnæ, laminis duabus inæquis nudis compositæ, una vel ambæ laminæ laterales; *maris* rudimentariæ.

G. 3. CEPON, *Duvernoy.*[†]—Pedes thoracis feminæ non unguiculati, per pulvillum terminalem ancorales. Appendices abdominis *feminæ* branchiales numero duodecim, elongatè lamellatæ et bene ciliatæ.

G. 4. DAJUS, *Kröyer.*[‡]—*Maris* abdomen 6-articulatum, segmento ultimo prælongo; pedes thoracis bene unguiculati; appendices abdominis numero decem, oblongæ, ciliatæ, aliis duabus terminalibus minutis. *Feminæ* appendices abdominis laterales, duæ posticæ caudales breves, exsertæ.

Subfam. 2. IONINÆ.—Pedes thoracis ad basin appendices simplices branchiales gerentes.

G. 1. IONE, *Latr.*—Pedes thoracis manu imperfectâ confecti. Appendices abdominales laterales, *maris* tenuiter cylindricæ, *feminæ* ramosæ præter duas ultimas simplices.

G. 2. ARGEIA, *Dana.*—Pedes thoracis manu imperfectâ confecti. Appendices *feminæ* abdominales laterales, birameæ, ramis simplicissimis, nudis; *maris* nullis, abdomine non articulato, nudo.

TRIBUS III.

AMPHIPODA.

Subtribus I. CAPRELLIDEA.

Fam. I. CAPRELLIDÆ.

Corpus longum et fere filiforme. Antennæ 2dæ longitudine mediocres. [Species non parasiticæ.]

1. *Pedes thoracis numero* 14.

G. 1. PROTO,[§] *Leach.*—Mandibulæ palpigeræ. Branchiæ segmentis 2do 3tio 4toque affixæ. Pedes thoracis toti articulis normales.

G. 2. PROTELLA, *Dana.*—Mandibulæ palpigeræ. Branchiæ segmentis 3tio 4toque affixæ. Pedes 3tii 4tique obsoleti articulo 1mo styliformi excepto.

2. *Pedes thoracis 3tii 4tique omnino obsoleti.*

G. 3. CAPRELLA, *Lamk.*—Mandibulæ non palpigeræ. Branchiæ segmentis thoracis 3tio 4toque affixæ. Abdomen brevissimum, 1–2-articulatum.

G. 4. ÆGINA, *Kröyer.*[‖]—Mandibulæ palpigeræ, palpis 3-articulatis. Branchiæ ac in *Caprellâ.* Abdomen brevissimum, 1–2-articulatum.

G. 5. CERCOPS, *Kröyer.*[¶]—Mandibulæ palpigeræ. Branchiæ segmentis 2do 3tio 4toque affixæ. Abdomen 5-articulatum, appendicibus 4 elongatis 3-articulatis.

3. *Pedes 3tii 4ti 5tique obsoleti.*

G. 6. PODALIRIUS, *Kröyer.*[**]—Branchiæ segmentis 3tio 4toque affixæ.

Fam. 2. CYAMIDÆ.

Corpus latum, depressum. Antennæ 2dæ obsoletæ. [Species parasiticæ.]

G. 1. CYAMUS.

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[*] Fauna Norwegens, p. 40.

[†] Annales des Sci. Nat. [2], xv, 110, pl. 4.

[‡] Voy. Scand., etc., Crust. tab. 28, 29.

[§] *Leptomera,* Latreille.

[‖] Tids. iv, 1842.

[¶] Ibid.

[**] Voy. Scand., pl. 25, and Tids. [2], i, 283.

Subtribus II. GAMMARIDEA.

[Among the Gammaridea, the author finds that the posterior caudal stylets offer important characters for distinguishing natural groups or genera, and upon this ground, some new genera have been recognized among the Corophidæ and Gammaridæ, and others *that have been rejected* are sustained. Thus *Iphimedia* is distinct from *Amphithoe*, *Mæra* and *Dercothoe* from *Gammarus*, etc.]

Fam. I. DULICHIDÆ.

Gressoriæ, habitu Caprelloideæ. Corpus lineare, epimeris obsoletis. Pedes posteriores longi, subprehensiles. Abdomen 5-articulatum.

G. 1. Dulichia, *Kröyer.**—Pedes 5ti 6ti 7mique, subæqui, 2di manu confecti. Antennæ quatuor longæ, superiores prælongi.

Fam. II. CHELURIDÆ.

Corpus fere cylindricum, epimeris mediocribus. Abdomen segmentis 4to 5toque coalitis et oblongis, stylis inter se valde dissimilibus.

G. 1. Chelura, *Philippi.*†

Fam. III. COROPHIDÆ.

Gressoriæ, pedibus partim lateraliter porrectis. Corpus plus minusve depressum, sæpe latum, epimeris perbrevibus, interdum obsoletis. Abdomen formâ appendicibusque normale. Antennæ sæpe pediformes.

Subfam. 1. CLYDONINÆ.—Styli caudales sex simplices, subulati.

G. 1. Clydonia, *Dana.*‡—Pedes filiformes, 5ti 6ti 7mique, longitudine increscentes, 1mi 2di non prehensiles. Antennæ duæ longæ, crassæ, rigidæ.

Subfam. 2. COROPHINÆ.—Antennæ plus minusve pediformes. Styli caudales 1mi 2dique biramei.

A. DIGITUS NULLUS 2-ARTICULATUS.

1. *Styli caudales 3tii minuti, simplices, 2di 1mique ramo externo cultriformi.*

G. 1. Corophium, *Latr*—Antennæ inferiores longiores et crassiores, flagello carentes. Pedes 2di non prehensiles, 1mis crassiores, articulo 4to latiore quam 5tus.

G. 2. Siphonœcetes, *Kröyer.*§—Antennæ inferiores longiores, flagello carentes. Pedes 1mi 2dique subchelati. [Pedes 3tii 4tique articulo 4to laté obcordato. Tubum lapillis fragmentisque concharum formatum inhabitat.]

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* Tids. [2], i, 512, 1845.

† Arch. f. Nat. 1839; and G. J. Allman, Ann. and Mag. N. H. xix, 361, June, 1847.

‡ Amer. J. Sci. [2], viii, 140; *Icilius*, D., on same page.

§ Voy. Scand., etc., 1838–1840, pl. 20, f. 1; Tidsskr. [2], i, 481, 1845. Kröyer in his description says:—

"Pedes thoracici primi et 2di paris validissimi, manu instructi subcheliformi. Pedes 3tii et 4ti paris articulo primo latissimo, laminari; articulo quarto obcordato, laminari, manum præbente, cujus unguis efficitur articulo quinto subconico articuloque sexto aciculari. Pedes 5ti 6tique paris minutissimi, sed robusti, recurvati, articulo primo clavato, ungue furcato. Pedes 7mi paris graciles, recurvati, articulo primo laminari, ungue minutissimo, furcato. Pedes abdominales 1mi, 2di et 3tii paris natatorii breves validissimi, parte basali latissima, rhomboidali; pedes 4ti, 5tique paris saltatorii, pes abdominalis sexti paris natatorius unica instructus lamina terminali."

2. *Styli caudales 3tii minuti, vix exserti, simplices, 2di 1mique ramis extus non præcipue spinosis nec cultriformibus, interdum nudis.*

G. 3. Platophium, *Dana.*—Corpus superne visum subellipticum, abdomine bene inflexo. Antennæ flagello brevi sæpe instructæ, inferiores longiores, superiores appendiculatæ. Pedes 1mi 2dique subchelati, 2dis validioribus. Pedes 10 postici mediocres.

G. 4. Cyrtophium, *Dana.*—*Platophio* similis. Antennæ superiores non appendiculatæ.

3. *Styli caudales 3tii parvuli, biramei, ramo externo non uncinato, 2di 1mique ramis extus non præcipue spinosis nec cultriformibus.*

G. 5. Unciola, *Say.*[*]—Pedes 1mi 2dique manu confecti, 1mis validioribus. Antennæ flagellis confectæ, subpediformes, validæ, superiores paulo longiores, appendiculatæ.

4. *Styli caudales 3tii paulo elongati, biramei, ramo externo uncinato.*

G. 6. Podocerus, *Leach.*[†]—Pedes 1mi 2dique subchelati, 2dis validioribus. Antennæ superiores breviores, non appendiculatæ. [An maris digitus 2dus interdum 2-articulatus Kröyero teste.]

G. 7. Cratophium, *Dana.*—Pedes 1mi 2dique subchelati, 2dis validioribus. Antennæ superiores breviores, appendiculatæ.

B. digitus 2dus 2-articulatus.

G. 8. Cerapus, *Say.*—Antennæ pediformes, subæquæ, flagellis carentes. Pedes 1mi 2dique prehensiles, 1mis parvulis, 2dis manu bene confectis. Styli caudales 3tii biramei, ramis subæquis, longiusculis. [Tubum membranaceum inhabitat.]

G. 9. Cerapodina, *Edw.* (*Cerapus*, Templeton). Antennæ totæ flagellis confectæ. Pedes 4ti 5ti 6tique obsoleti (?) [Tubum papyraceum inhabitat.]

G. 10. Erichthonius, *Edw.*[‡]—Antennæ flagellis confectæ. Pedes 10 postici mediocres. Epimeræ anteriores obsoletæ. [An styli caudales 3tii simplicissimi ?]

Subfam. 3. ICILINÆ.—Antennæ non pediformes nec subpediformes, flagellis sat longis basique sat brevi instructæ. Styli caudales ac in *Corophinis.*

G. 1. Icilius, *Dana.*—Pedes toti unguiculati et tenues, 4 antici longi, non prehensiles, ciliati, 10 postici fere similes. Antennæ superiores breviores non appendiculatæ.

G. 2. Pterygocera, *Latr.*—Pedes posteriores sublamellati. Antennæ superiores breviores, appendiculatæ, inferiores basi dilatatæ.

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[*] Jour. Acad. Nat. Sci. Philad., i, 388.

Glauconome of Kröyer has the hands and antennæ and apparently the other characters of Unciola. Say describes the hands of the 2nd pair in Unciola as *adactyle;* but they still are probably like those of Glauconome. The following is Kröyer's description:—

"*Antennæ* subpediformes; superiores flagello ornatæ appendiculari perparvo. *Oculi* minuti, parum distincti. *Mandibulæ* apex in duos fissus ramos qui dentibus sunt armati conicis; tuberculus molaris dentibus confertissimis instructus. *Labium superius* breve, depressum latissimum, margine anteriori medio inciso; *labium inferius* quatuor compositum laminis setosis. *Laminæ maxillares* pedum maxillarium dentibus armatæ validis; unguis palpi apice setosus. *Pes primi paris* robustissimus, manu subcheliformi; pes *secundi* paris gracilior, manu carens subcheliformi, pedes 3tii, 4tique paris pergraciles; pedes 5ti, 6ti, 7mique paris graciles femoribus parum dilatatis. Pedes abdominales 1mi 2di et 3tii paris natatorii, breves sed robustissimi; 4ti, 5tique paris saltatorii, validi; 6ti paris fere rudimentares, natatorii. Epimera minima fere evanescentia."

[†] *Jassa* of Leach may without inconvenience be united to *Podocerus,* as there is no essential generic difference between them.

[‡] The author obtained three species in the cruise of the Expedition having the hands and many other characters of Erichthonius, but with the epimerals of the anterior thoracic segments of considerable size; and moreover no gressorial habits were observed. They are therefore with some hesitation arranged in a genus named Pyctilus, among the Gammaridæ, subfamily Gammarinæ.

Fam. IV. ORCHESTIDÆ.*

Saltatoriæ, pedibus nullis lateraliter porrectis. Corpus compressum, epimeris magnis. Abdomen appendicibus normale. Antennæ non bene pediformes. Styli caudales 1mi 2dique biramei; 3tii simplices, brevissimi et ultra 2dos non prolongati. Mandibulæ non palpigeræ. Maxillæ 1mæ palpo sive parvulo et 1-articulato sive obsoleto instructæ.

G. 1. Orchestia.—Maxillipedes non unguiculati. Antennæ 1mæ basi 2darum breviores. Epimeræ 5tæ 4tis parce breviores.

Subgen. 1. Talitrus.—Pedes 1mi *maris feminæve* manu non instructi.

Subgen. 2. Talorchestia, *D.*—Pedes 1mi *maris* ac in *Talitro*, *feminæ* manu parvulâ instructi.

Subgen. 3. Orchestia.—Pedes 1mi *maris feminæque* manu plus minusve instructi.

G. 2. Allorchestes, *Dana.*—Maxillipedes unguiculati. Antennæ 1mæ minores, basi 2darum longiores. Epimeræ 5tæ 4tis sæpius multo breviores.

Fam. V. GAMMARIDÆ.

Saltatoriæ vel natatoriæ, pedibus nullis lateraliter porrectis. Corpus sæpius compressum, raro subdepressum, epimeris sive magnis sive parvis. Styli caudales laxiores, duobus ultimis oblongis sæpiusque ultra 2dos prolongatis, raro simplicibus. Mandibulæ sæpissimè palpigeræ. Maxillæ 1mæ palpo 2–3-articulato (rarissimè 1-articulato) instructæ.

I. PEDES 10 POSTICI NON PREHENSILES.

Subfam. 1. STEGOCEPHALINÆ.—Antennæ breves, superiores basi crassæ. Mandibulæ acie denticulatâ instructæ, palpo brevi uniarticulato intus dentato. Epimeræ permagnæ.

G. 1. Stegocephalus, *Kröyer.*†—Epimeræ 4tæ maximæ, 5tis parvis. Antennæ superiores appendiculatæ. Pedes 1mi 2di manubus carentes. [Pedes 5ti 3tii 4tique directione similes.]

Subfam. 2. LYSIANASSINÆ.—Antennæ breves, superiores basi crassæ. Mandibulæ apice parce dentatæ, acie vix instructæ, palpo 2–3-articulato. Maxillipedes lamellis internis grandibus. Epimeræ permagnæ.

1. *Pedes 1mi 2dique non subchelati, 2dis parvulis interdum exceptis.*

G. 1. Lysianassa, *Edw.*—Antennæ superiores appendiculatæ.
G. 2. Phlias, *Guerin.*—Antennæ superiores non appendiculatæ.

2. *Pedes 1mi subchelati, 2dis non subchelatis.*

G. 3. Opis, *Kr.*‡—Antennæ superiores appendiculatæ. Pedes 1mi crassè chelati, 2di debiles.

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* The author gives a different arrangement of the species of Orchestidæ from that published in this Journal, [2], viii, 135 and ix, 295, and rejects the genus Talitronus there instituted. He follows Fr. Müller (Archiv f. Nat., 1848, 53) in considering the Talitri and Orchestiæ as forming a single genus, his recent investigations confirming this view. The Gammaridæ also are rearranged.

† Kröyer's Nat. Tids. iv, 150, 1842. "Caput oculis ut videtur destitutum."

‡ Tids. iv, 149. "Pedes 1mi paris chelis armati portentosæ magnitudinis. Reliqua cum genere Anonyce ferme convenuint."

G. 4. Uristes, *Dana.**—Antennæ superiores non appendiculatæ. Pedes 1mi subchelati, 2di articulo styliformi confecti.

3. *Pedes 1mi 2dique plus minusve subchelati.*

G. 5. Anonyx, *Kr.*†—Epimeræ permagnæ. Antennæ superiores appendiculatæ, basi breves. Maxillipedes lamellis internis grandibus. Styli caudales postici biramei, ramis subulatis.

G. 6. Urothoe, *Dana.*—Epimeræ permagnæ, 5tis parvis. Antennæ 1mæ breviores, appendiculatæ, basi sat elongato. Styli caudales postici longi, biramei, ramis foliaceis, ciliatis. Mandibulæ palpo 3-articulato.

Subfam. 3. LEUCOTHOINÆ.—Antennæ superiores basi plus minusve graciles. Maxillipedes elongati, angusti, articulo longo unguiformi confecti, *lamellis internis perbrevibus.* Mandibulæ sive palpigeræ sive non palpigeræ, processu molari carentes. [An semper ?] Epimeræ magnæ.

G. 1. Stenothoe, *Dana.*—Epimeræ permagnæ, 4tæ maximæ, 5tæ parvulæ. Pedes 4 antici subchelati, 2dis validioribus. Antennæ superiores longiores, non appendiculatæ. Mandibulæ *non palpigeræ, processu molari carentes.* Styli caudales 1mi 2dique ramis bene subulati, 3tii simplicissimi, subulati, spinâ crassâ confecti.

G. 2. Leucothoe, *Leach.*‡—Epimeræ magnæ, 5tæ parvulæ. Pedes 4 antici subchelati, 2dis validioribus. Antennæ superiores longiores, non appendiculatæ. Mandibulæ palpigeræ. Styli caudales toti biramei, ramis subulatis.

[Cujus sedis est *Microcheles*, Kröyer,§ Amphithoe affinis, cui mandibulæ processu molari carentes: quoque *Amphithoe Marionis*, Edw., cui mandibulæ non palpigeræ.]

Subfam. 4. GAMMARINÆ.—Antennæ 1mæ basi graciles. Maxillipedes sat lati, lamellis internis sat elongatis. Mandibulæ acie denticulatâ instructæ et alterâ accessoriâ quoque processu molari et palpo 3-articulato. Pedes 10 postici non subprehensiles.

A. FRONS PRODUCTUS ET INFRA ANTENNIGERUS NON EST, ANTENNIS 1MIS INFERIORIBUS NON ANTERIORIBUS.

1. *Styli caudales postici biramei, ramis subæquis.*

A. PEDES 2DI NON SUBCHELATI.

G. 1. Acanthonotus, *Owen.*—Antennæ quatuor subæquæ, 1mæ non appendiculatæ. Epimeræ magnæ. Pedes 2di filiformes, manu omnino carentes, 1mi manu vix confecti.

G. 2. Alibrotus, *Edw.*—Antennæ 1mæ breves, appendiculatæ. Epimeræ magnæ. Pedes 1mi validi non subchelati.

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* Amer. J. Sci. [2], viii, 135. The genus *Stenia* is rejected.

† Tids. ii, 256, and iv, 164.

The genus *Ephippiphora* of White (Ann. and Mag. N. Hist. [2], i, 226, 1848) has been but briefly described, and we cannot pronounce upon its exact relation to either of the genera of Lysianassinæ. The habit is like that of Anonyx, the epimerals large, the superior antennæ appendiculate, the posterior caudal stylets elongate as in Anonyx and not short like the Orchestidæ. But the character of the termination of the 4 anterior legs is not stated, neither are they in view in the figure of the species on plate 5 of the Zool. of the Erebus and Terror. This figure represents the 5th and 6th pair of legs as rudimentary, or the basal joints twice as long as the following part, and the basal joint of the 6th smaller than that of the 5th or 7th.

‡ Kröyer states that the *bi-articulate* finger of Leucothoe is not a true generic characteristic, and adds two species to the genus, one of which has this character imperfectly and the other not at all. (Nat. Tids. iv, 141, 1842, and [2], i, p. 539, 1845). This character of the hand depends mainly on the prolongation of the inferior apex of the antepenult joint, which prolongation is variously developed in species of allied genera. They agree with Leucothoe in their peculiar slender maxillipeds; in the very small epimerals to the 1st segment, large 4th, and small 5th, 6th and 7th; in the caudal stylets; the very short 3d joint of the superior antennæ, and other characters.

§ Tids. N. R. ii, 5.

G. 3. LEPTOCHIRUS, *Zaddach.**—Antennæ 1mæ appendiculatæ. Pedes 1mi bene subchelatæ, 2di manu carentes.

B. PEDES 2DI 1MIQUE SUBCHELATI.

* Antennæ 1mæ non appendiculatæ.

G. 4. IPHIMEDIA, *Rathke,*† *D.*—Epimeræ magnæ, 4tæ maximæ, 5tis multo brevioribus et vix bilobatis. Styli caudales postici ramis duobus oblongis consimilibus apice setigeris et non uncinatis instructi. Antennæ 1mæ sæpius breviores.

G. 5. ŒDICERUS, *Kröyer.*‡—*Iphimediæ* affinis. Pedes 7mi longissimi, fere filiformes. Antennæ 1mæ breviores.

G. 6. AMPHITHOE, *Leach, D.*§—Epimeræ magnæ, 5tæ maximæ, vix bilobatæ lobo posteriore minimo. Styli caudales postici ramis duobus brevibus dissimilibus instructi, ramo externo apice recurvatim bi-uncinato, interno compresso apice non spinuloso sed pilis parce ciliato. Antennæ 1mæ sæpissime longiores.

** Antennæ 1mæ appendiculatæ.

G. 7. GAMMARUS, *Fabr., D.*‖—Epimeræ sive mediocres sive breves. Styli caudales postici 2dis non similes, ramis sæpe longis cum pilis raro spinulis ornatis, apice non uncinatis. Antennæ superiores sæpius longiores.

2. *Styli caudales postici sive ramo uno longo altero parvulo instructi, sive simplicissimi et apice non paulo reflexi.*

* Antennæ 1mæ non appendiculatæ.

G. 8. PHOTIS, *Kröyer.*¶—Epimeræ magnæ, 5tæ 4tis non breviores et postice profundius excisæ. Styli caudales ramo interno rudimentario.

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* The genus *Leptochirus*, (Syn. Crust. Borus. Prodromus, 1844) is described by Zaddach as having no appendicular branch to the superior antennæ. But Fr. Muller states (Archiv für Naturgeschichte, 1848, xiv, 62) that there is a small one-jointed appendage in the Leptochirus pilosus. The legs of the 2nd pair are described as having no proper hand, but terminating as in the genus Talitrus. May the form be female only?

† Beit. zur Fauna Norwegens, p. 85, Act. Leop. xx. *Dexamine* of Leach, may perhaps be included here.

The genus *Hyale* of H. Rathke (Fauna der Krym, Mem. Acad. Imp. St. Petersb., iii, 1837, p. 378, pl. 5) contains no characters in its description by this author which do not apply equally well to species of Iphimedia. The description is as follows:—"Corpus elongatum, compressum. Antennæ inferiores superioribus aliquantulum longiores; earum quælibet e tribus articulis atque flagello composita. Oculi disciformes. Pedes 14: duo eorum paria antica chelis monodactylis complanatis, 2di paris multo majoribus. Stylorum abdominalium paria tria. Abdominis appendicula terminalis simplex, erecta, verruciformis." The posterior stylets are 2-branched though short; and the species (H. pontica) is thus distinct from the Allorchestes.

‡ Tids. iv, 155, 1842. "Frons in rostrum producta, plus minus acutum obtusumve, semper vero nodo pellucenti, ovali, flavo-rubescente turgidum. Oculi nulli?" "Pedes 3tii 4tique paris validi, ungue instructi lato laminari, quod quoque usu venit 5to 6toque pari, quorum articulus 1mus dilatatus non est."

§ Includes *Pherusa* of Leach.

‖ *Amathia*, Rathke (Fauna der Krym, Mem. Acad. Imp. St. Petersb., iii, 1837, p. 291, and Beit. zur Faun. Norw. Act. Leop. xx) includes those Gammari that have the superior antennæ the shorter—not a proper basis for a genus. The eye is described as reniform.

The genus *Eusirus* of Kröyer is very near Gammarus, and it is doubtful whether it should be separated. Its habit however is somewhat different. The hands of the 2 anterior pairs of legs are large and equal, and the carpus is articulated with the upper margin of the hand near its middle. The eye is reniform. The superior antennæ have a short appendicular branch, consisting of a minute joint. "Mandibula parva, apice bifurco, dentato, flabello setarum marginis interioris, tuberculo molari transverso-elliptico dentibus minutissimis confectis formato; palpus triarticulatus duplam fere æquat mandibulæ longitudinem. Sex branchiarum paria in maribus (annuli thoracici 2di–7mi), 4 laminarum in feminis paria (annuli 2di–5ti)."—Tids. [2], i, 501.

¶ Tids. iv, 155, 1842, "Pes 5ti paris recurvatus, inversus, ungue rudimentari. Epimera permagna, 5 paria anteriora ad marginem inferiorem setis sat longis instructa, 5tum eadem est ac 4tum altitudine, postice profundius excisum. Lamina terminalis interior pedis saltatorii 3tii paris rudimentaris."

The *inversion* of the 5th pair of legs is not a generic character.

G. 9. MELITA, *Leach, D.*—Epimeræ 5tæ 4tis multo breviores (sic an semper?) Styli caudales uno ramo longo, sive subcylindrico sive foliaceo, altero brevi vel obsoleto. [Digitus in manus latus sæpe claudens.] Antennæ 1mæ sæpius longiores.

** Antennæ 1mæ appendiculatæ.

G. 10. MÆRA, *Leach, D.*—Epimeræ et styli caudales postici ac in *Melitâ.*

3. *Styli caudales postici simplicissimi, ramo uno brevi et nudo, apice paulo reflexo et spinas duas perbreves paulo exsertas gerente.*

G. 11. DERCOTHOE, *Dana.*—Epimeræ mediocres, 5tæ bene bilobatæ, 4tis sæpius vix breviores. Pedes 1mi 2dique digito uni-articulato confecti.

G. 12. PYCTILUS, *Dana,* (Erichthonius, *Edw.?*)—Epimeræ mediocres vel breves corpore lineari, subdepresso. Antennæ longæ, flagellis sat longis. Manus 1mæ articulis 4to 5toque sæpe instructæ, digito uni-articulato; 2dæ digito 2-articulato.

G. 13. (An hujus sedis?) PARDALISCA, *Kröyer.**—Epimeræ breves. Pedes 1mi 2dique digito 2-articulato manuque 1-articulatâ instructi. Antennæ tenues, 1mæ appendiculatæ.

B. FRONS PRODUCTUS ANTENNASQUE 1MAS VERSUS EXTREMITATEM GERENS. [AN SPECIES COROPHIDIS AFFINIORES.]

G. 14. ATYLUS, *Leach.—Iphimediæ* paulo affinis. Antennæ subpediformes, breviores, non appendiculatæ. Digiti 1mi 2dique uni-articulati.

G. 15. ISCHYROCERUS, *Kröyer.*†—*Gammaro* paulo affinis. Antennæ pediformes, 1mæ appendiculatæ. Palpus mandibularis longus, articulo ultimo obovato. Pedes 2di *maris* manu validissimâ instructi. Digiti uni-articulati. Epimeræ mediocres.

II. PEDES 10 POSTICI PARTIM PREHENSILES.

Subfam. 5. PONTOPORINÆ.—Pedes 3tii 4tique plus minusve prehensiles; 6 postici non prehensiles.

1. *Antennæ 2dæ inferiores et non posteriores.*

G. 1. LEPIDACTYLIS, *Say.*‡—Epimeræ magnæ. Antennæ superiores appendiculatæ, inferiores basi infra valde dilatatæ et partim dolabriformes. Pedes 4 antici filiformes; 3ti 4tique manu compressâ digitoque laminato instructâ; 5ti 6ti 7mique valde compressi, 7mis longioribus, articulis superne valde productis.

G. 2. PONTIPOREIA, *Kr.*§—Epimeræ magnæ. Antennæ superiores appendiculatæ. Pedes 1mi 2dique perbreves, robusti, 1mi manu latâ ungue brevi confecti, 2di manu carentes; 3tii 4tique validi, manu articulo 4to dilatato instructâ, ungue conico aculeato; 7mi ungue vel articulo 6to rudimentario.

G. 3. AMPELISCA, *Kr.*‖—Epimeræ magnæ. Antennæ graciles. Pedes 1mi 2dique manu nullâ subcheliformi; 3tii 4tique manu articulo 3tio instructâ, digito articulis 3 sequentibus formato, articulo ultimo vel ungue longissimo et gracillimo; 5ti 6tique 5-articulati, ungue rudimentario recurvo, immobili (vel parum mobili). Styli caudales postici natatorii.

G. 4. PROTOMEDEIA, *Kr.*¶—Corpus subdepressum, epimeris sat brevibus. Antennæ superiores appendiculatæ, inferiores pediformes, basi prælongo. Manus 3tiæ 4tæque articulis 3tio 4toque instructæ et digiti longi articulis sequentibus coalitis. Pedes 2di parvi, manu subcheliformi non instructi.

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* Tids. iv, 153, 1842. "Caput crassiusculum." "Mandibula apice dilatata, quadridentata, palpo 3-articulato." "Pedes 3tii 4tique paris ungue sublaminari postice subtiliter serrulato." "Pedes spurii [abdominales] 2di et 3tii paris natatorii, reliqui saltatorii."

† Tids. iv. "Pedes spurii 4ti 5ti 6tique paris saltatorii; articulus basalis 6ti paris articulis terminalibus triplo vel quadruplo longior."

‡ Jour. Acad. Nat. Sci. Philad., i, 379. Here falls *Bellia* of C. Spence Bate (Ann. and Mag. N. Hist. 1851, [2], vii, 318.)

§ Tids. iv, 152. "Pedes 5ti et 6ti paris recurvi, articulo 1mo parum modo dilatato ungue armati pusillo."

‖ Tids. iv, 154. "Oculi simplices?" "Sextum pedum abdominalium par natatorium."

¶ Tids. iv, 154.

G. 5. Aora, *Kr.*[*]—Corpus subdepressum, epimeris sat parvis. Antennæ superiores longæ, appendiculatæ, inferiores subpediformes. Pedes 1mi 2dique manu subcheliformi, 1mis maximis, articulo 3tio posticè in apicem longissimum producto, manu angustâ, ungue fere lamellari. Manus 3tiæ 4tæque articulo 4to ovali instructæ digitis articulis 5to 6toque. Styli caudales saltatorii, 6tis 7mis setis non aculeis apice instructis.

2. *Antennæ 2dæ multo posteriores, fronte in rostrum producto.*

G. 6. Phoxus, *Kr.*[†]—Epimeræ permagnæ. Pedes 1mi 2dique manu subcheliformi validâ instructi. Manus 3tiæ 4tæque articulo 3tio 4toque junctis instructæ, digitis 5to 6toque. Pedes 6ti multo longiores. Caput longum, triangulare, antice productum et acuminatum. Antennæ anteriores perbreves (capite breviores), elongate appendiculatæ; posteriores paulo longiores. Mandibulæ palpo longissimo. Segmentum caudale laminis constans duâbus.

Subfam. 6. ISÆINÆ.[‡]—Pedes quatuor vel sex postici subprehensiles.

G. 1. Isæa, *Edw.*—*Gammaro* similis. Pedes 10 postici similes, articulo 5to apice dilatato et truncato, ungue in articuli 5ti extremitatem latiusculam claudente. Pedes 2di manu grandi confecti. Antennæ superiores appendiculatæ.

G. 2. Anisopus, *Templeton.*—Pedes 4 postici ac in *Isæâ*, validiores, articulo 5to apice inferiore dentato, ungue magno. Pedes 1mi tenues et breves; 2di manu angustâ; 3tii manu grandiore; 4ti 5ti 1mis similes.

Subtribus III. HYPERIDEA.[§]

[In the first family of the Hyperidea, (the *Hyperidæ*) neither of the 5 posterior pairs of legs are subchelate, and the antennæ are not folded up beneath the head or thorax. In the second, (the *Phronimidæ*,) one or more of the 3 posterior pairs of legs are subchelate or much enlarged, apparently for grasping in coition, and the antennæ are as in the Hyperidæ. The third family (the *Typhidæ*) differs from both the preceding in the concealment and folding of the inferior antennæ beneath the head or thorax, and in many of the species, the abdomen closes up against the venter.]

Fam. I. HYPERIDÆ.[‖]

Antennæ 2dæ exsertæ. Abdomen in ventrem se non flectens. Pedes 5ti 6ti 7mique formâ longitudineque mediocres, 5tis 6tisve non percrassis nec prehensilibus.

Subfam. 1. VIBILINÆ.[¶]—Corpus formâ paulo Gammaroideum. Caput oculique mediocres. Maxillipedes palpo parvulo instructi. Palpus mandibularis tenuis.

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[*] Tids. [2], i, 335, 1845.

[†] Tids. iv, 150.

[‡] An genus *Laphystius* (Kröyer, Tids. iv, 156, 1842) Isæinis vel Corophidis affine. Species in Sturiones Squalosve parasitica! Descriptio sequens:—

Corpus latum, depressum, epimeris mediocribus, 4tis infra acutè productis. Caput transversum, rostratum. Antennæ sat breves, subulatæ, validæ, 1mæ validissimæ, anteriores, 2dæ posteriores. Mandibulæ palpo instructæ. Pedes 1mi gracillimi, manu lineari; 2di breves, manu validâ, ungue sublaminari. Reliqui decem pedes validi, subcheliformes, longitudine subæqui. Styli caudales debiles. Palpus maxillarum 1marum uniarticulatus.

[§] *Hyperines* of Edwards, Crust. iii, 70: *Hyperita*, Cat. Brit. Crust. Brit. Mus. 56.

[‖] Familiæ duæ nostræ Hyperidæ et Phronimidæ sunt Tribus “Hypérines ordinaires.” Edw. (Crust. iii, 74; et *Phronimadæ* Cat. Brit. Crust. Brit. Mus., p. 56.

[¶] *Hyperines Gammaroides*, of Edwards, Crust. iii, 72.

G. 1. Vibilia, *Edw.*—Antennæ 4 breves, 1mæ obtusæ. Pedes 1mi 2dique subprehensiles.

Subfam. 2. HYPERINÆ.—Caput tumidum. Oculi pergrandes. Palpus mandibularis tenuis.

1. *Antennæ sive 1mæ sive 2dæ flagello longo confectæ.*

G. 1. Lestrigonus, *Edw.*—Antennæ 1mæ 2dæque flagello longo confectæ. Pedes 1mi 2dique paulo prehensiles.

G. 2. Tyro, *Edw.*—Antennæ 1mæ flagello longo confectæ; 2dæ perbreves, flagello nudo.

2. *Antennæ totæ breves. Caput oculique pergrandes.*

G. 3. Hyperia, *Latr.*—Antennæ 1mæ 2dæque conspicuæ, 2dis gracilioribus. Pedes 2di sæpiusque 1mi subprehensiles, manibus multum imperfectis, articulo 4to ad apicem inferiorem paulo producto tantum.

G. 4. Metoecus, *Kröyer.*—*Hyperiæ* affinis. Pedes 1mi 2diqne perbreves, manibus melioribus bene didactylis confecti.

G. 5. Tauria, *Dana.*—Antennæ ac in *Hyperiâ.* Pedes 2di non prehensiles, articulo 4to apice inferiore non expanso nec producto.

G. 6. Daira, *Edw.*—Antennæ 1mæ non conspicuæ, 2dæ exsertæ. Pedes 1mi 2dique plus minusve prehensiles: tarsi pedum reliquorum breves. Rami stylorum caudalium longi.

G. 7. Cystisoma, *Guèrin.*[*]—Antennis pedibusque 1mis *Dairæ* affine. Tarsi prælongi. Styli caudales longi, ramis brevibus.

Subfam. 2. SYNOPINÆ.—Corpus gracilius. Palpus mandibularis sat brevis, latissimus. Oculi grandes.

G. 1. Synopia, *Dana.*—Caput subtriangulatum, non oblongum. Pigmentum oculorum unicum. Pedes 1mi parvuli, prehensiles; 2di setis longiusculis confecti; 4ti subprehensiles; 5ti 6ti 7mique subæqui.

Fam. II. PHRONIMIDÆ.

Antennæ 2dæ exsertæ. Abdomen in ventrem se non flectens. Pedes 5ti 6tive sive crassi sive elongati, sæpius prehensiles, quoque 3tii 4tique sæpe prehensiles.

Subfam. 1. PHRONIMINÆ.—Abdomen versus basin sat gracile. Pedes 5ti magnâ manu didactylâ vel monodactylâ confecti; 3tii 4ti extremitate graciles, non prehensiles. Antennæ breves.

G. 1. Phronima, *Latr.*—Manus pedis 5ti didactylæ. Segmentum thoracis 1mum oblongum.

G. 2. Primno, *Guèrin.*—Manus pedis 5ti monodactylæ. Segmentum thoracis 1mnm non oblongum.

Subfam. 2. PHROSININÆ.—Abdomen versus basin sat crassum. Pedes 5ti prehensiles, monodactyli; quoque 3tii 4tique prehensiles. [Antennæ sat breves.]

1. *Manus pedis 5ti latæ, digito arcuato.*

G. 1. Anchylomera, *Edw.*[†]—Manus pedis 5ti latè et crassè subtriangulatæ. Pedes 6ti non prehensiles.

G. 2. Phrosina, *Risso.*[‡]—Manus pedis 5ti latæ, oblongæ. Pedes 6ti prehensiles, 5tis fere similes, minores. Mandibulæ non palpigeræ.

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[*] Guèrin, Rev. Zool., i, (1842) p. 214. Species *C. neptunus* portentosæ magnitudinis (3½″.)

[†] *Hieraconyx*, Guèrin.

[‡] *Dactylocera*, Latreille.

2. *Manus pedis 5ti elongatè lineares, digito recto, longissimo, tenui.*

G. 3. Themisto, *Guèrin.*—Pedes 3tii 4tique prehensiles, manibus latis.

Subfam. 3. PHORCINÆ.—Pedes 5ti 6tive valde elongati et crassi, sed manu non confecti. [Antennæ breves.]

G. 1. Phorcus, *Edw.*—Pedes 1mi 2di 3tii 4tique graciles, unguiculati, 5ti 6tique prælongi, 5ti aciculares, 6ti crassissimi.

Fam. III. TYPHIDÆ.*

Antennæ 2dæ sub capite thoraceve celatæ et sæpius replicatæ. Abdomen in ventrem sæpe se flectens. Pedes 6 postici interdum abbreviati, articulo 1mo operculiformi, interdum longitudine mediocres.

Subfam. 1. TYPHINÆ.—Abdomen in ventrem se flectens.

G. 1. Dithyrus, *Dana.*—Pedes 5ti 6tique articulo 1mo latè lamellati, articulis reliquis omnino obsoletis. Antennæ 2dæ breves, sub capite celatæ, non replicatæ, articulo 1mo longiore quam 2dus.
G. 2. Typhis, *Risso.*—Pedes 5ti 6tique articulo 1mo late lamellati, articulis reliquis paulo abbreviatis. Antennæ 2dæ biplicatæ, articulo 1mo longiore quam 2dus.
G. 3. Thyropus, *Dana.*†—Pedes 5ti 6tique articulo 1mo late lamellati, articulis reliquis paulo abbreviatis. Antennæ 2dæ 4–5-plicatæ, sub thoracis latere celatæ, articulo 1mo multo breviore quam 2dus.

Subfam. 2. PRONOINÆ.—Abdomen in ventrem se non flectens. Caput non oblongum, antennis frontalibus.

G. 1. Pronoe, *Guèrin.*—Pedes 2di non prehensiles. Pedum 6 posticorum articuli 1mi lati, reliquâ parte paris 7mi fere obsoletâ.
G. 2. Lycæa, *Dana.*—Pedes 1mi 2dique subchelati. Articuli pedum 6 posticorum 1mi angusti, subæqui, reliquâ parte paris 7mi paulo abbreviatâ.

Subfam. 3. OXYCEPHALINÆ.—Abdomen in ventrem se non flectens. Caput oblongum, antennis 1mis superficiem capitis inferiorem insitis.

G. 1. Oxycephalus, *Edw.*—Caput breviter acuminatum. Styli caudales longitudine mediocres.
G. 2. Rhabdosoma, *White.*‡—Caput rostro longo styliformi armatum. Styli caudales valde elongati.

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* *Hypérines anormales* of Edwards, Crust. iii, 94. *Typhidæ*, Cat. Brit. Crust. Brit. Mus., 57.

† Species *Typhis ferox* (Edw.) is here included.

‡ Crust. Voy. Samarang, p. 63, pl. 13, f. 7.

Corrections.—Page 305, last line, for 92, read 192.—Page 306, 5 lines from bottom, for iii, read viii.

[*Extracted from the American Jour. of Science and Arts, 2nd Series, Vol. XIV, Sept.* 1852.]

XXI.

From the American Journal of Science and Arts, Second Series, Vol. VIII.—No. 22.

SYNOPSIS

OF THE

GENERA OF GAMMARACEA.

By JAMES D. DANA.

THE tribe of Amphipoda among Crustacea includes the subtribes Gammaracea and Hyperiacea. The former of these subtribes consists of six groups or families.

Fam. 1. ORCHESTIDÆ. Saltatoriæ. Palpus mandibularis obsoletus. Corpus compressum, epimeris latis. Styli caudales duo postici breviores.

Fam. 2. GAMMARIDÆ. Saltatoriæ vel natatoriæ. Mandibulæ palpigeræ. Corpus sæpius compressum. Antennæ flagello confectæ, non pediformes. Styli caudales duo postici sive longi sive breves.

Fam. 3. COROPHIDÆ. Gressoriæ. Corpus plus minusve depressum, lineare, abdomine recto, normali, epimeris angustissimis vel obsoletis. Mandibulæ palpigeræ. Antennæ pediformes.

Fam. 4. ICILIDÆ. Corpus depressum, latum, abdomine normali, inflexo, pedibus latè expansis instar Araneæ. Antennæ non pediformes.

Fam. 5. CHELURIDÆ. Corpus vix compressum. Abdomen abnormale, segmentis duobus tribusve coalitis et irregularibus; stylis caudalibus sex, dissimilibus. Antennæ breves pediformes.

Fam. 6. DULICHIDÆ. Isopodis affines. Corpus depressum, lineare. Antennæ pediformes. Abdomen abnormale, 5-articulatum, stylis duobus. Antennæ pediformes. Pedes tertii quartique breves, sex sequentes elongati, Caprelliformes.

In the following synopsis, the synonymy is included only so far as it is not contained in the work on Crustacea by Milne Edwards (Paris, tome iii, 1840); copious notes also are added. The number of new genera introduced since 1840 is quite large, and a few are instituted from the collections by the writer in the Exploring Expedition.*

We add a word on a single point in the distinctions of genera. The size of the hands among the Orchestidæ and Gammaridæ has often been deemed to some extent an important generic character. But it is now well known that the gradations in the same group are imperceptible, and farther, females may have minute and hardly prehensile feet, while in males of the same species the corresponding hands are quite large. On this ground, Fr. Müller has lately denied the propriety of separating the Orchestiæ, and Talitri (Archiv für Naturg., 1848, p. 53). There is however a wide difference between the species having a styliform joint terminating the *second pair* of legs and those with a hand however minute or obsolescent. The only safe course appears to the writer to consist in drawing the line between *species having a finger or claw however small or large, closing upon the fifth joint,* and those *species having an extended finger or claw not closing up.* Kröyer's *Anonyx,* according to his description, has the 4 anterior feet non-prehensile; but in his figures, these feet are subprehensile though minute, and they resemble in this, many *Amphitoe*, *Orchestiæ*, and *Allorchestes.* The two *anterior* feet of the Talitri vary widely, from an obsolescent hand to a large strong prehensile form. Here as elsewhere in nature, there is no saltus in the gradations to aid us in generic groupings.

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* The Crustacea of the Exploring Expedition under Captain Wilkes will form a volume of text in 4to, accompanied with figures of all the species in a folio atlas. Brief descriptions will from time to time appear in the Proceedings of the American Academy of Arts and Sciences of Boston, a part of which, relating to the Entomostraca and including upwards of 150 species, has already been published. The number of new species of Amphipoda in the collections exceeds eighty.

The larger part of the new genera recently added, have been instituted by Kröyer from species obtained in high northern latitudes. It is remarkable that the forms in this tribe should be so greatly varied in the colder seas, and the genera so few in tropical latitudes.

Fam. I. ORCHESTIDÆ.

1. Pedes ~~secundi~~ primi non subcheliformes. Antennæ superiores basi inferiorum breviores.	*Talitrus* (Latreille).
2. Pedes primi secundique subcheliformes. Antennæ superiores basi inferiorum breviores. Maxillipedes ad apicem obtusi.	*Orchestia* (Leach).
3. Pedes primi secundique subcheliformes. Antennæ superiores breviores, basi inferiorum longiores. Maxillipedes ad apicem unguiculati.	*Allorchestes* (Dana.[*])

Fam. II. GAMMARIDÆ.

Sub-fam. I. Lysianassinæ.

Antennæ superiores ad basin crassæ. Epimera grandia. Pedes sex postici non prehensiles.

I. Pedes subcheliformes nulli, secundis interdum exceptis.

a. *Pedes quinti sexti septimique directione similes.*

1. Antennæ superiores appendiculatæ.	*Lysianassa* (M. Edw.).
2. Antennæ superiores non appendiculatæ.	*Phlias* (Guérin).

b. *Pedes quinti tertii quartique directione similes.*

1. Antennæ sup. appendiculatæ. Palpus mandibularis 1-articulatus.	*Stegocephalus*[†] (Kröyer).

II. Pedes primi subcheliformes, secundi non subcheliformes; reliqui non prehensiles.

1. Antennæ sup. appendiculatæ.	*Opis*[‡] (Kröyer).
2. Antennæ sup. non appendiculatæ. Pedes secundi vergiformes; tertii quartique brevissimi.	*Uristes* (Dana).

III. Pedes primi secundique subcheliformes, reliqui non prehensiles.

1. Antennæ sup. appendiculatæ.	*Anonyx*[§] (Kröyer).
2. Antennæ sup. non appendiculatæ.	*Stenia* (Dana).

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[*] The species of this genus have the aspect of many Amphithoe, and have probably been hitherto referred to that genus. They have the very short posterior stylets of the Orchestiæ, and resemble them in habit and in the absence of a palpus to the mandible; while they differ in having the superior antennæ *longest* and in the stout spine or claw terminating the maxillipeds. The writer has dissected the mouth of nearly a dozen species of Allorchestes.

[†] Kröyer's Naturhistorisk Tidsskrift, (Copenhagen,) iv, 150, 1842. "Caput *oculis*, ut videtur, destitutum." "Antennæ breves (capitis altitudine non longiores)." "Pedes quinti paris pedibus tertii quartique paris structurâ et directione similes."

[‡] Tids. iv. 149. "Pedes primi paris chelis armati portentosæ magnitudine. Reliqua cum genere *Anonyce* fermè conveniunt."

[§] Tids., ii, 256 and iv, 164. This genus is united with Lysianassa by Milne Edwards. Any species wholly without hands are properly *Lysianassæ;* those with only two anterior hands, however minute or imperfect, belong to *Opis.*

A new genus of Orchestidæ; by J. D. Dana.—In a synopsis of the genera of Gammaracea, in this Journal, volume viii, p. 135, three genera of Orchestidæ are mentioned, Talitrus, Orchestia and Allorchestes. We here add a fourth; and for the purpose of giving a fuller comparative view of the four, and correcting a misprinted word, we insert the generic characters for the group.

1. Pedes primi non cheliformes nec subcheliformes, articulo styliformi confecti; secundi sæpe subcheliformes, manu sive parvulâ et debili sive nullâ. Antennæ superiores basi inferiorum breviores.	*Talitrus* (Latreille).
2. *Talitro* pedes primos antennasque similis. Pedes *maris* secundi valde subcheliformes, manu grandi.	*Talitronus* (Dana).
3. Pedes primi secundique plus minusve subcheliformes. Antennæ superiores basi inferiorum breviores. Maxillipedes apicem obtusi.	*Orchestia* (Leach).
4. Pedes primi secundique plus minusve subcheliformes. Antennæ superiores breviores, basi inferiorum longiores. Maxillipedes apicem unguiculati.	*Allorchestes* (Dana).

From Jour. Sci. vol. viii, p. 295—

IV. Pedes tertii quartique subcheliformes.

1. Antennæ sup. appendiculatæ. Pedes tertii quartique validi, articulo quarto dilatato instar palmæ, ungue conico, aculeato.	*Pontoporeia*[*] (Kröyer).

SUBFAM. II. GAMMARINÆ.

Antennæ superiores ad basin tenues. Epimera sive grandia sive angusta. Pedes 6 postici non prehensiles.

I. Pedes subcheliformes nulli, secundis parvulis interdum exceptis.

1. Antennæ superiores appendiculatæ.	*Alibrotus* (M. Edw.).
2. Antennæ sup. non appendiculatæ.	*Acanthonotus* (Owen).

II. Pedes primi subcheliformes, secundi non subcheliformes, reliqui non prehensiles.

1. Antennæ sup. appendiculatæ.	*Leptochirus*[†] (Zaddach).

III. Pedes primi secundique subcheliformes, reliqui non prehensiles.

A. *Antennæ secundæ subtus primas insitæ.*

* Digiti toti uni-articulati.

a. *Pedes sex postici similes.*

1. Antennæ sup. appendiculatæ.	*Gammarus*[‡] (Fabr.).
2. Antennæ sup. non appendiculatæ.	*Amphithöe*[§] (Leach).

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[*] Tids. iv, 152. "Pedes primi et secundi paris perbreves, robusti; illi manu latâ instructi ungue vero breviore; hi manu carentes ungueque præditi rudimentari. Pedes tertii quartique paris longiores, validi, subcheliformes, articulo quarto dilatato palmam efficiente, ungue armati conico, aculeato. Pedes quinti et sexti paris recurvi, articulo primo parum modo dilatato ungue armati perpusillo. Pedes septimi paris recurvi, articulo primo permagno, clypeiformi; articulo sexto vel ungue rudimentari. Epimera magna."

[†] Syn. Crust. Pruss. Prodromus, 1844. This genus is stated to be allied to Amphithoe.

[‡] From the genus Gammarus, Leach separates:—

MÆRA (Edinb. Encyc., vii, 403; Trans. Linn. Soc., xi, 359.) Manus secundæ valde inæquæ, majore bene cheliformi.

MELITA (Edinb. Encyc., vii, 403.) Digitus pedum secundi paris in latus manûs claudens.

The *Amathia* of Rathke (Fauna der Krym, Mem. Acad. Imp. St. Petersburg, iii, 1837, p. 291, and Beit. zur Fauna Norwegens, Act. Leop., xx Bd.) includes those Gammari which have the superior antennæ shortest—apparently an unimportant distinction.

[§] Amphithöe includes the *Dexamine* and *Pherusa* of Leach. *Eusirus* of Kröyer (Tids., N. R., i, 501,) is somewhat peculiar in the form of the hands, but the gradations among the species are such that the character is not sufficient even for a subgenus.

Kröyer's *Microcheles* (Tids., N. R., vol. ii,) is also near Amphithöe. The principal point of difference mentioned is the absence of the molar prominence from the mandible. The *small hands* to which the name alludes is common to many Amphithöes, especially females.

The *Iphimedia* of Rathke (Beit. zur Fauna Norwegens, p. 85; Act. Leop., Bd. xx) appears to differ little from Amphithöe. The superior antennæ are shorter than the inferior, and this characterizes generally the species from the higher latitudes. *Acanthosoma* of Owen (Ross's 2d voyage to the north in 1829–1833, Append., p. xci) has the same characters. The description of Iphimedia by Rathke is as follows—p. 89. "Antennæ superiores inferioribus breviores; illarum pedunculus e tribus, harum e quatuor articulis, compositus: omnium flagellum tenue, multiarticulatum. Pedes secundi paris manibus simplicibus, primi paris, illis minores, chelis instructi, quarum pollex ex uno tantum articulo constat. Reliqui pedes iis Gammarorum similes. Pedes spurii in duos ramos plus minusve complanatos divisi."

b. *Pedes sex postici non similes.*

1. Pedes quinti recurvati, inversi, ungue rudimentari. Antennæ sup. non appendiculatæ. *Photis*[*] (Kröyer).

2. Pedes septimi longissimi, tenues, fere filiformes. Antennæ sup. non appendiculatæ. Frons in rostrum producta. *Œdicerus*[†] (Kröyer).

† Duo quatuorve digiti bi-articulati.

1. Pedes primi digitum bi-articulati. Antennæ sup. non appendiculatæ. *Leucothöe* (Leach).

2. Pedes secundi digitum bi-articulati. *Erichthonius* (M. Edw.).

3. Pedes primi secundique digitum bi-articulati. Antennæ tenues, sup. appendiculatæ. *Pardalisca*[‡] (Kröyer).

B. *Antennæ secundæ post primas insitæ, fronte in rostrum productâ.*

1. Digiti uni-articulati. Pedes 6 postici similes. Antennæ anticæ appendiculatæ. *Ischyroceras* (Kröyer).

IV. Pedes tertii quartique prehensiles ; sequentes non prehensiles.

A. *Antennæ secundæ subtus primas insitæ.*

1. Manus tertiæ quartæque simplicissimæ, pollice instructæ. Digiti uni-articulati. Antennæ sup. appendiculatæ. *Lepidactylis*[§] (Say).

2. Manus tertiæ quartæque articulis tertio quartoque instructæ, et digiti articulis sequentibus coalitis. Corpus subdepressum. Antennæ sup. appendiculatæ. *Protomedeia*[‖] (Kröyer).

3. Manus tertiæ quartæque articulo tertio instructæ, et digiti articulis sequentibus junctis, articulo ultimo longissimo, gracillimo. Antennæ graciles. Epimera magna. *Ampelisca*[¶] (Kröyer).

4. Manus tertiæ quartæque articulo quarto instructæ, et digiti articulis quinto sextoque. Corpus subdepressum. Antennæ sup. appendiculatæ ; inf. subpediformes. Pedes primi secundique subcheliformes. *Aora*[**] (Kröyer).

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[*] Tids., iv, 155. "Corpus sat altum, compressum. Antennæ subpediformes flagello appendiculari destitutæ." "Epimera permagna; quinque paria anteriora ad marginem inferiorem setis sat longis instructa; quintum eadem est ac quartum altitudine, postice profundius excisum."

[†] Tids., iv, 155. "Frons in rostrum producta, plus minus acutum obtusumve, semper vero nodo pellucente, ovali, flavo rubescente, turgidum. Oculi nulli?" "Pedes primi et secundi paris manu armati subcheliformi permagna. Pedes tertii, quartique paris validi, ungue instructi lato, laminari; quod quoque usu venit quinto sextoque pari, quorum articulus primus dilatatus non est." "Epimera mediocris magnitudinis."

[‡] Tids., iv, 153. "Caput crassiusculum, subtumidum. Epimera exiguæ magnitudinis." "Pedes tertii quartique paris ungue sublaminari, posticè subtiliter serrulato. Pedes reliqui elongati, sat debiles, femoribus subangustis."

[§] Jour. Acad. Nat. Sci. of Philadelphia, i, 380. Superior antennæ appendiculate, shorter than the inferior pair.

[‖] Tids., iv, 154. "Antennæ inferiores pediformes, pedunculo longissimo, flagellum ter ad minus longitudine superante. Pedes secundi paris parvi, manu non instructi subcheliformi." "Epimera sat brevia."

[¶] Tids., iv, 154. "Pedes primi secundique paris nulla instructi manu subcheliformi." "Pedes quinti sextique paris articulis modo compositi quinque, quorum ultimus ad finem marginis posterioris ungue armatus est rudimentari, recurvo, immobili (vel parum mobili). Septimum pedum par ungue laminari, lato, natatorio (?)" "Oculi simplices (?)" "Epimera magna." "Sextum pedum abdominalium par natatorium. Reliqua ut in genere Amphithöe."

[**] Tids., N. R., i, 328, 1845. "Quintum pedum par brevissimum, robustum; sextum par septimumque quinto multo longiora sed graciliora." "Pedes abdominales quarti, quinti et sexti paris saltatorii."

B. *Antennæ secundæ post primas insitæ, fronte in rostrum productâ.*

1. Manus tertiæ quartæque articulis tertio quartoque instructæ, et digiti articulis sequentibus coalitis. Antennæ anticæ appendiculatæ, breves. Pedes primi secundique subcheliformes. *Phoxus*[*] (Kröyer).

SUBFAM. III. ISÆINÆ.

Pedes sex quatuorve postici subprehensiles.

A. *Antennæ secundæ subtus primas insitæ.*

1. *Gammaro* similis. Pedes decem postici similes. Antennæ sup. appendiculatæ. *Isæa* (M. Edw.).
2. Pedes tertii sexti septimique crassè cheliformes; secundi minores; primi quarti quinti minimi. Digiti toti uni-articulati. *Anisopus* (Templeton).

B. *Antennæ secundæ post primas insitæ, fronte in rostrum productâ.*

1. Pedes decem postici subcheliformes, similes. *Laphystius*[†] (Kröyer).

FAM. III. COROPHIDÆ.

a. *Digiti duo 2-articulati.*

1. Antennæ totæ flagellis confectæ. Caput et segmentum proximum in unum coalita. Pedes quarti, quinti, sextique obsoleti? *Cerapodina* (M. Edw.).
2. Antennæ flagellis carentes. *Cerapus* (Say).

b. *Digiti nulli 2-articulati.*

* Antennæ inferiores flagellis carentes.

1. Pedes secundi non subcheliformes. *Corophium* (Lat.).
2. Pedes primi secundique subcheliformes. *Podocerus*[‡] (Leach).

† Antennæ quatuor flagellis gracilibus confectæ.

1. Pedes primi secundique subcheliformes. Antennæ superiores appendiculatæ. *Unciola*[§] (Say).
2. Pedes primi secundique subcheliformes. Antennæ superiores non appendiculatæ. *Atylus* (Leach).

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[*] Tids., iv, 150. "Sextum pedum par ceteris multo longius." "Epimera permagna."

[†] Tids., iv, 156. "Antennæ sat breves, subulatæ, validæ." "Pes primi paris gracillimus, manu lineari, ungue elongato; pes secundi paris brevis, validus, manu quadrata, ungue sublaminari apice setoso. Reliqui decem pedes validi, subcheliformes, eadem ferme longitudine. Epimera mediocris magnitudinis; quartum par in acumen inferne productum."

[‡] The Siphonœcetes of Kröyer (Voy. Scand., etc., 1838–1840, pl. 20, fig. 1; Tids., N. R., i, 481, 1845) differs from Podocerus only in having the posterior legs longer than the four preceding. In his description he says, p. 491:—

"Pedes thoracici primi et 2di paris validissimi, manu instructi subcheliformi. Pedes 3tii et 4ti paris articulo primo latissimo, laminari; articulo quarto obcordato, laminari, manum præbente, cujus unguis efficitur articulo quinto subconico articuloque sexto aciculari. Pedes 5ti 6tique paris minutissimi, sed robusti, recurvati, articulo primo clavato, ungue furcato. Pedes 7mi paris graciles, recurvati, articulo primo laminari, ungue minutissimo, furcato. Pedes abdominales 1mi, 2di et 3tii paris natatorii breves validissimi, parte basali latissima, rhomboidali; pedes 4ti, 5tique paris saltatorii, pes abdominalis sexti paris natatorius unica instructus lamina terminali."

[§] Glauconome of Kröyer (ibid, pl. 19, fig. 1; Tids., N. R., i, 491, 1845) has the hands and antennæ of Unciola. The following is the description, p. 501:—

"*Antennæ* subpediformes; superiores flagello ornatæ appendiculari perparvo. *Oculi* minuti, parum distincti. *Mandibulæ* apex in duos fissus ramos qui dentibus

‡ Antennæ longæ, flagello crasso rigidoque, obsoletè articulato.

Antennæ styliformes, rectæ. Pedes filiformes, non prehensiles, sex postici prælongi. *Clydonia* (Dana).

FAM. IV. ICILIDÆ.

1. Pedes postici sublamellati. *Pterygocera* (Lat.).
2. Pedes toti vergiformes, nulli prehensiles. *Icilius* (Dana).

FAM. V. CHELURIDÆ.

Abdomen ad extremitatem crassè styliforme, (segmentis quarto quinto sextoque in articulum styliformem coalitis). *Chelura** (Philippi).

FAM. VI. DULICHIDÆ.

Caprelliformes. Abdomen 5-articulatum. Segmenta thoracis sextum septimumque coalita. *Dulichia*† (Kröyer).

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sunt armati conicis; tuberculus molaris dentibus confertissimis instructus. *Labium superius* breve, depressum latissimum, margine anteriori medio inciso; *labium inferius* quatuor compositum laminis setosis. *Laminæ maxillares* pedum maxillarium dentibus armatæ validis; unguis palpi apice setosus. *Pes primi paris* robustissimus, manu subcheliformi; pes *secundi* paris gracilior, manu carens subcheliformi, pedes 3tii, 4tique paris pergraciles; pedes 5ti, 6ti, 7mique paris graciles femoribus parum dilatatis. Pedes abdominales 1mi 2di et 3tii paris natatorii, breves sed robustissimi; 4ti, 5tique paris saltatorii, validi; 6ti paris fere rudimentares, natatorii. Epimera minima fere evanescentia."

* Philippi, Archiv fur Naturg., 1839. Also on Chelura terebrans, G. J. Allman, Ann. and Mag. Nat. Hist., xix, 361, June, 1847.

† Kröyer, Tids., N. R., i, 512, 1845, and Voy. Scand., etc., pl. 22, fig. 1, 1*a*–1*n*. "Corpus valde elongatum gracili. Antennæ longissimæ (imprimis superiores) subpediformes; superiores flagello instructæ appendiculari. Oculi prominentissimi, acuminati. Pedes 1mi paris compressi, manu (articulo 4to) magna, ungueque biarticulato instructi (qui unguis articulo 5to 6toque junctis efficitur). Pedes 2di paris manu instructi subcheliformi (quæ apud mares maxima est). Pedes 3tii 4tique paris minimi, fere filiformes, invicem ejusdem fermè longitudine et forma. Pedes 5ti 6ti 7mique paris elongati, lineares (femore non dilatato) prehensiles. Sextus thoracis annulus cum septimo coalitus ut difficilius distinguantur. Epimera nulla vel prorsus rudimentaria. Abdomen quinque modo compositum annulis et quinque præditum pedum paribus, quorum tria anteriora natatoria, duo posteriora saltatoria sunt."

Mr. Adam White, F. L. S.
with the respects of
James D. Dana

CONSPECTUS CRUSTACEORUM, ETC.

Amphipoda. No. I.

XXII

Conspectus Crustaceorum quæ in Orbis Terrarum circumnavigatione, Carolo Wilkes *e Classe Reipublicæ Fœderatæ Duce, lexit et descripsit* Jacobus D. Dana. Pars III.*

Subtribus I. GAMMARACEA.

Familia I. ORCHESTIDÆ.

Palpus mandibularis obsoletus. *Corpus* compressum, epimeris latis. *Styli caudales* duo postici breviores.

Genus I. TALITRUS. (*Latreille.*)

Pedes primi styliformes, secundi vel non subcheliformes vel manu debilissimâ confecti. *Antennæ* primæ basi inferiorum breviores.

1. Talitrus Novi-Zealandiæ. — Epimera grandia, nuda, spinulis minutis marginem armata. Antennæ 2dæ dimidii corporis longitudine, setis brevissimis, (latitudine antennæ duplo brevioribus); flagello vix longiore quam basis, articulis transversis. Antennæ 1mæ basi 2darum non duplo breviores. Pedes 1mi validiusculi, elongati; 2di paulo breviores, articulo ultimo obtuso, fere breviore quam penultimus, digito obsoleto(?). Pedes 10 postici densè setosi, 6 postici valde inæqui, 7mis duplo longioribus quam 5ti, articulo primo latissimo.

Long. 10‴. — *Hab.* in portu "Bay of Islands" Novi-Zealandiæ.

2. Talitrus gracilis. — Epimera grandia. Antennæ 2dæ dimidio corporis valde longiores, setis brevissimis (latitudine antennæ duplo brevioribus); flagello multo longiore quam basis, articulis paulo oblongis. Antennæ 1mæ basi secundarum triplo breviores. Pedes 1mi validiusculi, ungue parvulo, articulis 2do 3tio 4to 5to subæquis. Pedes 2di paulo breviores, articulo penultimo posticè triangulato; ultimo lamellato, fere nudo, apicem rotundato, margine antico parce excavato et versus apicem digitum minutum gerente. Pedes 3tii 4tis valde longiores. Pedes 6 postici paulo graciles, fasciculatim setulosi, articulo primo anguste elliptico; pedibus 7mis multo longioribus quam 5ti.

Long. 5‴ - 6‴. — *Hab.* in sabulis litoralibus insulæ freti "Balabac."

3. Talitrus ornatus. — Segmenta corporis lævia. Epimera lata, per sulcos subtiles areolata. Antennæ 2dæ dimidio corporis paulo

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* Vide supra, p. 61.

breviores, flagello vix longiore quam basis, articulis parce oblongis, setis brevissimis. Antennæ 1mæ basi secundarum fere triplo breviores, 5 – 7-articulatæ. Pedes 1mi validiusculi, secundis multo longiores, ungue valido. Pedes 2di debiles, manu parvulâ subellipticâ, apice subacutâ, digito dorsali, minuto, apicem non attingente. Pedes sequentes subsetosi, 4ti 5ti subæqui, 7mi 6tis longiores, articulis primis pedum sex posticorum scalpturis.

Long. 6‴ – 9‴. — *Hab.* in sabulis litoralibus prope " Valparaiso."

Genus II. TALITRONUS. (*Dana.*)

Pedes secundi manu valido prehensili confecti. Alias *Talitro* similis.

1. Talitronus insculptus. — Segmenta corporis glabra, lineis elevatis granulisve seriatis transversim notata. Epimera lata sparsim sculpto-granulosa. Antennæ 2dæ dimidio corporis non breviores, fere nudæ, articulo basis ultimo fere duplo longiore quam penultimus, flagello non longiore quam basis. Antennæ 1mæ dimidio basis 2darum breviores. Pedes 1mi subgraciles, ungue fere recto. Pedes 2di validi, manu latâ, subtriangulatâ, palmâ obliquâ rectiusculâ medium emarginatâ, digito perlongo (dimidio manus valde longiore). Pedes 3tii quartis longiores, 6ti 7mique subæqui.

Long. 9‴. — *Hab.* in sabulis litoralibus prope " Valparaiso."

Genus III. ORCHESTIA. (*Leach.*)

Pedes primi, secundique subcheliformes, manu debili aut validâ confecti. *Antennæ primæ* basi secundarum breviores. *Maxillipedes* apicem obtusi.

1. Orchestia sylvicola. — Epimera sat angusta. Antennæ 2dæ tenues, dimidii corporis longitudine; flagello longiore quam basis, articulis oblongis, setis articulo parce brevioribus. Antennæ 1mæ basi 2darum dimidio breviores. Pedes 4 antici debiles; 2di paulo grandiores, manu oblongâ, subellipticâ, antrorsum reflexâ, apicem rotundatâ, digito minuto, marginem inferiorem versus medium affixo. Pedes 4 sequentes subæqui, ungue parvulo. Pedes 6 ultimi paulo inæqui, setis brevibus, articulo primo 5torum oblongo, 7morum latissimo.

Long. 6‴ – 8‴. — *Hab.* in cratere extincto " Taiamai " Novi-Zealandiæ.

2. Orchestia tenuis. — Epimera sat angusta. Antennæ 2dæ tenues, dimidii corporis longitudine; flagello tenuissimo, valde longiore

quam basis, articulis oblongis, cylindricis, setis articulo vix brevioribus. Antennæ 1mæ basi 2darum vix breviores. Pedes 4 antici debiles; primi minimi; secundi parvuli, manu minutâ, oblongâ, retrorsum inflexâ, extremitate dimidio truncatâ, apice postico producto et obtuso, digito minuto, non laterali. Pedes 4 sequentes parvuli, 4tis brevioribus. Pedes 6 postici valde inæqui, 7mis fere duplo longioribus quam 5ti; setis brevibus.

Long. 6‴. — *Hab.* apud oras sinus "Bay of Islands" Novi-Zealandiæ.

3. Orchestia rectimanus. — Epimera sat lata, marginem minutè setulosa, quinta perangusta. Antennæ 2dæ dimidii corporis longitudine, setis minutis (latitudine articuli non longioribus); flagello parce longiore quam basis, articulis paulo oblongis, setis perbrevibus. Antennæ 1mæ, basi 2darum breviores. Pedes 4 antici debiles, 1mis subtilissimè unguiculatis; 2dis paulo longioribus, manu parvulâ rectâ, spatulatâ, apicem rotundatâ, digito minuto laterali prope apicem affixo. Pedes 4 sequentes subæqui. Pedes 6 ultimi non multo inæqui, setis perbrevibus, articulo primo latissimo, margine postico setuloso.

Long. 3‴ - 4‴. — *Hab.* in humidulis, insulæ Tahiti, ad altitudinem ped. 1500, mari remotis.

4. Orchestia spinipalma. — Epimera sat angusta, quintis parce angustioribus quam quarta. Antennæ 2dæ dimidii corporis longitudine, setis minutissimis; flagello basin longitudine æquante, articulis plerumque paulo oblongis. Antennæ 1mæ minutæ, basi secundarum quadruplo breviores. Pedes 1mi parvuli, debiles, manu oblongâ, minutâ, breviore quam articulus precedens, apicem rectè truncatâ. Pedes 2di validi, manu subovatâ, margine inferiore (palmâ) versus apicem parce excavato, spinulis armato, digito elongato, paulo breviore quam manus. Pedes sequentes tenues; 4 proximis subæquis; 4 ultimis subæquis; setis perbrevibus.

Long. 6‴. — *Hab.* apud oras insulæ "Tongatábu."

5. Orchestia scutigerula. — Epimera sat lata, quintis angustioribus quam quarta. Antennæ 2dæ breves, corpore triplo breviores; flagello moniliformi, parce longiore quam basis. Pedis 7mi articulus primus ellipticus et *laminam crassam grandem latè ellipticam posticè gerente;* setis perpaucis perbrevibus. Pedes 1mi parvuli, manu subtriangulatâ, apice transversâ. Pedes 2di validi, manu latâ, subtriangulatâ, anticè arcuatâ, palmâ obliquè transversâ, fere rectâ, angulo

infero acuto; digito longo. Pedes 4 sequentes sat longi, subæqui, 6 ultimi sensim increscentes.

Long. $9''' - 11'''$. — *Hab.* ad oras sinus "Nassau," Fuegiæ, inter Algas rejectas.

6. Orchestia nitida. — Epimera mediocria, quinta quartis minora. Antennæ 2dæ dimidio corporis breviores; flagello longiore quam basis, moniliformi. Antennæ 1mæ dimidio basis secundarum parce longiores. Pedes 1mi parvuli, manu subsecuriformi, apice truncato, latiore. Pedes 2di validi, manu subovatâ, palmâ rectâ dimidio manus longiore, digito longo (palmam longitudine æquante). Pedes 4 sequentes subæqui; reliqui breviusculi, sensim increscentes, articulo primo lato, margine subtilissimè serrulato.

Long. $4'''$. — *Hab.* in mari prope oras sinus "Nassau," Fuegiæ, inter Algas natantes.

7. Orchestia dispar. — Epimera mediocria, quinta valde angusta. Antennæ 2dæ vix dimidii corporis longitudine; flagello longiore quam basis, articulis vix oblongis, setis brevissimis. Antennæ 1mæ basi secundarum breviores. Pedes 1mi parvuli, manu apicem latiore, obliquè truncatâ et excavatâ. Pedes 2di validi, manu subobovatâ, obliquè truncatâ, palmâ paulo sinuosâ, pubescente. Pedes 3tii 4tis parce longiores; 7mi 6tis paulo breviores, *articulis tertio quartoque incrassatis, et valde compressis.*

Long. $6''' - 7'''$. — *Hab.* ad oras Illawarræ, Australiæ.

8. Orchestia quadrimanus. — Epimera sat lata, 5ta 4tis minora. Antennæ 2dæ dimidio corporis paulo breviores, bene setulosæ; flagello parce longiore quam basis, articulis non oblongis, cylindricis. Antennæ 1mæ basi 2darum fere dimidio breviores. Pedes 1mi parvuli, manu fere triangulatâ, apicem truncatâ, paululo excavatâ. Pedes 2di validi, manu subquadratâ, paulo oblongâ, palmâ apicali, transversâ, paulo excavatâ. Pedes 3tii 4ti debiles subæqui; 5ti 6ti 7mi similes, valde inæqui (7mis duplo longioribus quam 5ti), sensim increscentes, breviter setosæ.

Long. $7'''$. — *Hab.* ad oras Illawarræ, Australiæ Orientalis.

9. Orchestia serrulata. — Epimera lata, quinta anticè quartis non angustiora. Antennæ 2dæ fermè dimidii corporis longitudine; flagello vix longiore quam basis, articulis non oblongis, setis fere obsoletis. Pedes 1mi parvuli, manu subtriangulatâ, paulo oblongâ, apicem latiore transversâ parce excavatâ. Pedes 2di validi, manu

grandi, subellipticâ, palmâ infero-subapicali, excavatâ, subtilissimè spinulosâ, angulo infero rotundato. Pedes 3tii 4ti tenues, subæqui; 5ti 6ti 7mi sensim increscentes, articulo primo latissimo, margine postico serrulato, antico 2–3 setis minutis armato.

Long. $9'''-10'''$. — *Hab.* ad oras insularum "Black Rocks" in sinu "Bay of Islands" Novi-Zealandiæ.

Genus IV. ALLORCHESTES. (*Dana.*)

Pedes primi secundique subcheliformes. *Antennæ primæ* breviores, basi secundarum longiores. *Maxillipedes* apicem unguiculati.

1. Allorchestes compressa. — Epimera latissima, quarta maxima, quinta perangusta. Antennæ 2dæ crassiusculæ, basi fere quadruplo longiore quam flagellum. Antennæ 1mæ 2dis paulo breviores, flagello fere duplo longiore quam basis. Pedes 1mi parvuli, manu vix oblongâ, apicem obliquè truncatâ et paulo excavatâ. Pedes 2di validi, manu subovatâ, palmâ rectâ, fere nudâ, digito longo. Pedes 3tii 4ti longi, subæqui; sex sequentes paulo inæqui, breviusculi, sensim increscentes, articulo primo latissimo, setis sparsis, minutissimis.

Long. $7'''-8'''$. — *Hab.* ad oras Illawarræ, Australiæ Orientalis.

2. Allorchestes verticillata. — Epimera sat angusta, quinta perangusta. Antennæ 2dæ 1mis fere duplo longiores, plus dimidio corporis breviores, flagello fermè duplo longiore quam basis, 14-articulato, articulis parce oblongis, setis densè verticillatis, brevibus. Pedes 1mi parvuli, manu oblongâ, dorsum fere rectâ, infra versus apicem obliquâ. Pedes 2di validi, manu ovatâ, palmâ rectiusculâ, pubescente, digito longo. Pedes 3tii 4ti sat longi, subæqui; 5ti 6ti 7mi subæqui, 5tis paulo brevioribus, articulo primo lato, setis sparsis, brevibus.

Long. $4'''$. — *Hab.* apud oras prope Valparaiso.

3. Allorchestes hirtipalma. — Epimera lata, quinta perangusta. Antennæ 2dæ corpore plus dimidio breviores; flagello plus duplo longiore quam basis, infra densè breviter villoso, articulis non oblongis. Antennæ 1mæ 2dis paulo breviores. Pedes 1mi parvuli, manu oblongâ, apicem oblique truncatâ. Pedes 2di validi, manu subovatâ, infra subtruncatâ et hirtâ, palmâ paulo depressâ, rectiusculâ, digito longo. Pedes 4 ultimi subæqui, quinti breviores.

Hab. apud oras prope Valparaiso, et insulæ "San Lorenzo."

4. Allorchestes gracilis. — Epimera mediocria, quinta perangusta. Antennæ tenuissimæ: 2dæ dimidii corporis longitudine;

flagello multo longiore quam basis, articulis oblongis, setis perbrevibus, paucis : 1mæ dimidio breviores, basi 2darum paulo longiores. Pedes 1mi parvuli, manu trapezoidali, obliquè truncatâ, palmâ rectâ, pubescente. Pedes 2di validi, manu subovatâ, palmâ rectiusculâ, breviter sparsim hirsutiusculâ, angulo infero obsoleto ; digito longo ; articulo tertio brevi, infra acutè producto. Pedes 3tii 4ti subæqui ; 6 ultimi sat breves sensim increscentes, articulo primo lato, setis sparsis brevissimis.

Long. 6‴ – 8‴. — *Hab.* in mari prope oras insulæ " Tongatabu."

5. Allorchestes peruviana. — Epimera sat lata, quinta perangusta. Antennæ 2dæ dimidii corporis longitudine ; flagello duplo longiore quam basis, fermè 14-articulato, articulis parce oblongis, setis perbrevibus. Antennæ 1mæ 2dis paulo breviores, flagello 10 – 12-articulato, fere nudo. Pedes 1mi sat parvi, manu oblongâ, dorsum rectâ, apicem obliquè truncatâ. Pedes 2di validiusculi, manu angustâ, dorsum rectâ, apicem valde obliquè truncatâ ; margine infero omnino hirsutâ ; digito brevi. Pedes 3tii 4ti sat longi, subæqui ; 6ti 7mi subæqui, non perlongi, 5ti parce breviores.

Long. 4‴. — *Hab.* ad oras prope Valparaiso, inter Algas rejectas.

6. Allorchestes humilis. — Epimera sat lata, quinta perangusta. Antennæ breves : 2dæ corpore fere triplo breviores, flagello breviore quam basis, 9 – 10-articulato, setis totis brevissimis : 1mæ 2dis paulo breviores, flagello 6 – 8-articulato. Pedes 1mi parvi, manu oblongâ, angustâ, dorsum fere rectâ, apicem obliquâ. Pedes 2di validiusculi, manu angustâ et versus basin angustante, apicem obliquè truncatâ et hirsutiusculâ, margine infero versus basin nudo, ad medium subemarginato et hirtello ; digito brevi. Pedes 3tii 4ti tenues, subæqui ; 6 sequentes sat breves, subæqui, 5ti breviores, articulo primo fere orbiculari, setis paucis brevissimis.

Long. 4‴. — *Hab.* in mari apud oras portus " Jackson " Australiæ Orientalis.

7. Allorchestes australis. — Epimera grandia, quinta perangusta. Antennæ sat breves : 2dæ corpore plus duplo breviores ; flagello paulo longiore quam basis, 12 – 14-articulato, articulis vix oblongis, setis fere obsoletis : 1mæ 2dis paulo breviores, flagello fermè 14-articulato. Pedes 1mi parvuli, manu apicem paulo latiore, rectè truncatâ. Pedes 2di validi, manu subovatâ, palmâ paulo excavatâ, nudâ, angulo infero minutè setuligero. Pedes sequentes breves : 3tii

4ti tenues: 5ti 6ti 7mi sensim increscentes, setis brevissimis; articulo primo perlato.

Long. 6‴. — *Hab.* ad oras Illawarræ, Australiæ Orientalis.

8. Allorchestes brevicornis. — Epimera mediocria, quinta perangusta. Antennæ breves: 2dæ corpore triplo breviores; flagello longiore quam basis, articulis vix oblongis setis brevissimis: 1mæ breviores. Pedes 1mi parvuli, manu rectangulatâ, apicem rectè truncatâ. Pedes 2di sat parvi, manu perangusto-ovatâ, infra fascibus setarum parvulis paucis ornati, palmâ brevi, paulo impressâ, rectâ. Pedes 3tii 4ti debiles; 5ti 6ti 7mi sat breves; 4 ultimi subæqui, setis minutis, paucis.

Long. 5‴. — *Hab.* ad oras sinus "Bay of Islands" Novi-Zealandiæ.

9. Allorchestes Novi-Zealandiæ. — Corpus valde compressum, epimeris latissimis. Antennæ fere æquæ, tenuissimæ: 2dæ fere dimidii corporis longitudine; flagello duplo longiore quam basis, 12–14-articulato, articulis oblongis, setis brevissimis, paucis: 1mæ parce breviores, flagello fermè 16-articulato. Pedes 4 antici parvuli (an feminæ tantum?) manu primâ apicem paulo latiore, truncatâ, digito brevissimo; secundâ parce majore obliquè truncatâ, trapezoidali, marginibus fere rectis; articulo precedente apicem inferiorem valde producto, processu angusto manum appresso. Pedes 6 ultimi sat breves, 5tis paulo brevioribus.

Long. 5‴. — *Hab.* ad oras sinus "Bay of Islands" Novi-Zealandiæ.

10. Allorchestes intrepida. — Corpus valde compressum, epimeris 8 latissimis, 6 posticis angustissimis. Antennæ 2dæ dimidii corporis longitudine; flagello tenuissimo, parce longiore quam basis, articulis oblongis tenuibus, setis fere obsoletis: 1mæ multum breviores, flagello plus duplo longiore quam basis. Pedes 1mi parvuli, manu apicem transversâ et non latiore, emarginatâ, digito valde longiore quam margo apicalis (vel palma), articulo precedente infra producto et acuto. Pedes 2di validi, manu subovatâ, dorso fere recto, palmâ parce impressâ hirsutiusculâ, digito longo: *feminæ* manu angustâ apicem rectè truncatâ, digito brevi; articulo precedente infra longe acuto. Pedes 3tii 4ti subæqui; 6 ultimi sensim increscentes.

Long. 3‴ – 4‴. — *Hab.* ad oras portus "Parua" in sinu "Bay of Islands" Novi-Zealandiæ.

11. Allorchestes orientalis. — Epimera lata. Antennæ 2dæ dimidii corporis longitudine; flagello fere duplo longiore quam basis,

moniliformi, 14-articulato, articulis oblongis, setis brevibus. Antennæ 1mæ paulo breviores, flagello moniliformi, 7-articulato. Pedes 1mi parvuli, manu subellipticâ. Pedes 2di validiusculi, manu subovatâ, palmâ parce excavatâ, minutè sparsim setulosâ; digito longo; articulo precedente angusto, proximo infra subacuto, non producto. Pedes 6 postici sensim increscentes, setis paucis, minutis.

Long. 3‴. — *Hab.* in mari "Sulu."

12. Allorchestes? graminea. — Epimera mediocria. Antennæ 2dæ corpore plus duplo breviores; flagello moniliformi, multo longiore quam basis, setis minutis. Antennæ 1mæ 2dis breviores, flagello ferme 14-articulato. Pedes 1mi parvuli; manu angustâ; digito crasso, styliformi. Pedes 2di validi, manu angustè subovatâ, infra fere rectâ, palmâ non excavatâ, digito longo; articulo precedente infra non producto. Pedes 3tii 4ti sat longi, subæqui; 5tii 6ti 7mi paulo inæqui, sensim increscentes, fere nudi.

Long. 6‴ – 7‴. — *Hab.* in portu "Rio de Janeiro."

Familia II. GAMMARIDÆ.

Mandibulæ palpigeræ. *Corpus* sæpius compressum. *Antennæ* flagello confectæ, non pediformes. *Styli caudales* duo postici sive longi sive breves. *Animalia saltatoria vel natatoria.*

Subfamilia I. LYSIANASSINÆ.

Antennæ primæ basin crassæ. *Epimera* grandia. Pedes sex postici non prehensiles.

Genus I. LYSIANASSA.

Pedes subcheliformes nulli secundis interdum exceptis, sex posticis directionem similibus. *Antennæ* primæ appendiculatæ.

1. Lysianassa Brasiliensis. — Corpus valde compressum, epimeris latissimis. Oculi reniformes. Antennæ 1mæ breves, corpore quadruplo breviores; flagello duplo longiore quam basis, fermè 10-articulato, appendice 7-articulato. Antennæ 2dæ dimidio corporis valde longiores, sæpe epimeris celatæ, basi brevi et geniculante. Pedes 4 antici similes, tenues; 3tii 4tis longiores; 5ti 6ti 7mi similes, sensim increscentes, articulo primo marginem posticum serrulato.

Long. 3‴. — *Hab.* ad oras portus "Rio de Janeiro."

Genus II. URISTES. (*Dana.*)

Pedes primi subcheliformes; *secundi* articulo styliformi confecti; *tertii quartique* brevissimi; reliqui non prehensiles; similes. *Antennæ primæ* non appendiculatæ.

Uristes gigas. — Corpus compressum, epimeris latissimis. Antennæ subæquæ, crassiusculæ, dimidio corporis breviores: 1mæ parce breviores, flagello processubus obtusis infra breviter fimbriato, articulis transversis: 2dæ paulo graciliores, flagello fere triplo longiore quam basis, processubus minutis triangulatis supra ornato, articulis non oblongis. Pedes 1mi 2dis breviores, manu parvulâ, angustâ, oblique truncatâ, digito brevi. Pedes 2di 5-articulati, articulo ultimo elongato, styliformi, acuto. Pedes 7mi 6tis paulo breviores. Segmentum abdominis antepenultimum posticè acutum.

Long. 9‴. — *Hab.* in mari Antarctico: tubo cibario piscis lecta.

Genus III. STENIA. (*Dana.*)

Pedes primi secundique subcheliformes; reliqui non prehensiles. *Antennæ primæ* non appendiculatæ. *Corpus* compressum.

Stenia Magellanica. — Corpus valde compressum. Oculi reniformes. Antennæ 2dæ 1mis plus duplo longiores, dimidii corporis longitudine, fere nudi, basi brevi. Antennæ 1mæ nudæ, flagello longiore quam basis. Pedes 4 antici parvuli, similes, 1mi parce minores, manu parvulâ, angustâ, apicem obliquâ, digito minuto. Pedes 3tii 4tique æqui; 6ti 7mique æqui, articulo primo lato et posticè serrulato. Abdominis segmentum ultimum oblongum, emarginatum.

Long. 4‴ – 6‴. — *Hab.* in mari portus " Good Success " Fuegiæ.

Subfamilia II. GAMMARINÆ.

Antennæ primæ basin tenues. *Epimera* sive grandia, sive angusta. *Pedes sex postici* non prehensiles.

Genus I. GAMMARUS.

Pedes primi secundique subcheliformes, digito uni-articulato, reliqui non prehensiles, sex posticis similibus. *Antennæ* secundæ sub primas insitæ, primæ appendiculatæ.

I. Manus pedum 2dorum pollice elongato non armata.

1. *Abdominis segmenta dorsum plus minusve spinulosa aut denticulata.*

1. Gammarus asper. — Epimera lata. Segmenta abdominis tota

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dorsum inæque denticulata. Oculi subrotundati. Antennæ 2dæ dimidio corporis parce longiores, tenues, flagello breviore quam basis, articulis oblongis, setis conspicuis, divaricatis. Antennæ 1mæ æque setulosæ, articulo primo paulum crasso, oblongo, appendice 3-articulato. Manus 1ma parvula, oblonga, attenuata. Manus 2da validiuscula, angusta, versus apicem sensim angustior, dorsum recta, infra supraque valde hirsuta, digito dimidio breviore.

Long. 6‴. — *Hab.* in mari "Sulu."

2. Gammarus Suluensis. — *Feminæ:* Segmenta abdominis primum secundumque in marginem posticum dorsalem 2 – 3-dentata, quartum etiam 2-acutum. Oculi subrotundati. Antennæ 1mæ corporis longitudine; flagello longiore quam basis, articulis oblongis, setis non brevioribus, appendice brevissimo, 3-articulato. Antennæ 2dæ fere dimidio breviores, flagello plus duplo breviore quam basis, basi parce breviore quam antennarum basis 2darum. Pedes 4 antici subæqui, parvi; manu 1mâ parvulâ, apicem latiore, truncatâ; 2dâ paulo majore, oblongâ, apicem truncatâ, non latiore. Pedes sex postici paulo inæqui, setis paucis remotis, apicalibus longiusculis.

Long. 4‴ – 5‴. — *Hab.* in mari "Sulu" prope oras insulæ, inter Algas natantes.

3. Gammarus albidus. — Epimera latiuscula. Abdominis segmenta primum secundum quartumque dorso uni-spinosa. Antennæ 1mæ dimidio corporis valde longiores, flagello longiore quam basis, fere 21-articulato, articulis oblongis, setis vix brevioribus, appendice brevi, 3-articulato. Antennæ 2dæ tenuissimæ, fere dimidio breviores, flagello breviore quam basis, fermè 8-articulato. Pedes *feminæ* 4 antici subæqui, parvi; manu 1mâ parvulâ, oblongâ, apicem fere rotundatâ, non latiore; 2dâ parce longiore, fere lineari, infra hirsutâ; *maris* 2dâ crassâ, latè oblongâ, versus basin sensim paulo angustiore, infra parce hirsutiusculâ apicem obliquè truncatâ, palmâ apicali, paulo excavatâ. Pedes 6 postici subæqui, hirsuti.

Long. 5‴. — *Hab.* in lacu insulæ "Tongatabu."

2. *Abdomen non dentatum nec spinulosum.*

a. Margo frontis lateralis ophthalmicus saliens.

4. Gammarus hirsuticornis. — Epimera lata. Antennæ infra setosæ; 1mæ dimidio corporis breviores, flagello basis longitudinem fere æquante, appendice 3-articulato: 2dæ paulo breviores, articulis ba-

salibus quatuor subæquis, flagello breviore quam basis. Pedes 4 antici parvuli, 6 postici sensim increscentes, setis brevibus sparsis. An femina?

Long. 3‴ – 4‴. — *Hab.* ad oras insulæ "Enchados," in portu "Rio de Janeiro."

5. Gammarus emissitius. — Gracilis, epimeris mediocribus. Caput oblongum, lateribus anticè productum. Antennæ setosæ, 1mæ dimidio corporis vix longiores, articulis primo tertioque subæquis; flagello breviore quam basis, fermè 7-articulato, appendice 3-articulato. Antennæ 2dæ breviores, basi vix breviore quam basis 1marum; flagello breviore quam basis, fermè 7-articulato. Manus 1ma parvula angustissima; secunda valida, subovata, sparsim setosa, dorso parce arcuato, palmâ non excavatâ, digito mediocri. Pedes 6 postici sensim increscentes, setis paucis; quinti quartis breviores.

Long. 4‴. — *Hab.* in mari "Sulu."

b. Margo frontis lateralis ophthalmicus non prominentes.

6. Gammarus tenuis. — Gracilis, epimeris angustis. Caput utrinque obsoletè prominulum. Antennæ 1mæ corpore paulo breviores, teretes, tenuissimæ, flagello parce longiore quam basis, 14-articulato, setuloso, appendice brevissimo. Antennæ 2dæ valde breviores, setis longioribus; basi valde longiore quam basis 1marum, articulis 2 ultimis longis subæquis; flagello 5-articulato, non longiore quam articulus basis ultimus. Manus 1ma valida, lata et oblonga basin paulo angustior, apicem obliquè truncata, palmâ non excavatâ, digito mediocri. Manus 2da parvula (an feminæ?) ovata. Pedes 7mi 6tis valde longiores, sparsim setosi.

Long. 3‴. — *Hab.* in mari "Sulu."

7. Gammarus furcicornis. — Gracilis, epimeris angustis; sparsim pubescens. Caput fere oblongum. Antennæ 1mæ corpore breviores, articulo primo crasso, oblongo; flagello terete, parce longiore quam basis, fermè 14-articulato, sparsim setuloso; appendice dimidio breviore, 5-articulato. Antennæ 2dæ valde breviores, basi vix breviore quam basis 1marum, flagello brevi, parce longiore quam articulus tertius, 7 – 10-articulato. Manus 1ma parvula, subovata. Manus 2da valida, lata et oblonga, trapezoidea, apicem parce latior, fere rectè truncata, infra setuligera, palmâ apicali, non excavatâ. Pedes 6 postici subæqui, 7mis paulo longioribus, setis numerosis.

Long. 3‴. — *Hab.* ad oras insulæ in mari "Sulu."

8. Gammarus tenellus. — Gracilis, epimeris angustis. Oculi orbiculati, parvuli. Antennæ 1mæ dimidii corporis longitudine, articulo primo tenui, flagello parce longiore quam basis, setis perbrevibus, appendice fere dimidio breviore. Antennæ 2dæ tenuissimæ, breves, basi paulo breviore quam basis 1marum, flagello non longiore quam articulus basis ultimus. Manus 1ma parvula, subovata, dorsum rectiuscula. Manus 2da valida, lata, oblonga, subrectangulata, basin paulo angustior, apicem fere rectè truncata, sparsim setulosa, palmâ non excavatâ. Pedes 6ti 7mis longiores, quinti valde breviores, setis paulo sparsis.

Long. $4'''$. — *Hab.* in Archipelagine "Viti."

9. Gammarus orientalis. — Gracilis, epimeris angustis. Oculi orbiculati. Antennæ validiusculæ, basi longo, flagello brevi (an adulto?). Pedes 1mi validiusculi, manu mediocri, subellipticâ, dorsum fere rectâ, infra arcuatâ, hirsutâ, digito longo. Manus 2da valida, subovata, palmâ erosâ vel 2 – 3 dentatâ remotè hirsutâ, digito longo. Pedes sex postici sensim paulo increscentes, setis paucis.

Long. $2\frac{1}{2}''' - 3'''$. — *Hab.* in mari prope fretum Sundæ.

II. Manus una paris secundi validissime cheliformis, pollice valde elongato; altera parvula. (*Gen.* Mæra, *Leachii.*)

1. *Dorsum abdominis nudum.* [Palma 3-dentata.]

10. Gammarus (Mæra) quadrimanus. — Gracilis, epimeris perangustis. Antennæ 1mæ dimidii corporis longitudine, basi longiore quam flagellum, articulis primo secundo subæquis, longis, flagello pubescente, appendice parce longiore quam dimidium flagelli. Antennæ 2dæ breviores, basi breviore quam basis 1marum, flagello perbrevi. Manus 1ma parvula oblonga, infra hirsuta, basin angusta, palmâ obliquâ. Manus 2da validissima, subquadrata, palmâ apicali, transversâ, tridentatâ, pollice acuto, tenui, digito acuto. Pedes 7mi 6tis parce breviores, articulis apicem posticum densè pilosis.

Hab. in Archipelagine "Viti."

2. *Dorsum abdominis armatum.* [Manus major subtriangulata, palmâ 2-dentatâ, dentibus obtusis.]

11. Gammarus (Mæra) validus. — Gracilis, epimeris angustis. Oculi rotundati. Antennæ tenuissimæ: 1mæ corporis longitudine, articulo secundo longiore, flagello vix longiore quam basis, appendice

brevi, 3–5-articulato: 2dæ paulo breviores, basi parce longiore quam basis 1marum, flagello dimidio breviore. Manus 1ma parvula. Manus secunda *dextra* validissima, basin latè rotundata, apice superno non prominente, rectangulato; *sinistra* parvula, angusta, acuminata, infra pubescens. Pedes 6 postici subsetosi.

Long. $2\frac{1}{2}'''$ – $3'''$. — *Hab.* in mari juxta "Singapore."

12. GAMMARUS (MÆRA) SETIPES. — Gracilis, epimeris perangustis. Oculi orbiculati. Antennæ corporis longitudine: 1mæ paulo majores, articulo secundo longiore, flagello longiore quam basis, appendice 5-articulato: 2dæ longæ, basi multo longiore quam basis 1marum, articulo primo infra producto, flagello breviore quam basis. Manus secunda *dextra* validissima, basin angusta, apicem non prominens, fere rectangulata; *sinistra* parvula, basin angustior, apicem truncata. Pedes 6 postici subæqui, 6tis parce longioribus, articulis breviter et sparsim setosis, tertio postice serrato.

Long. $4'''$. — *Hab.* in portu "Rio de Janeiro."

13. GAMMARUS (MÆRA) PILOSUS. — Gracilis, epimeris angustis. Antennæ subæquæ, corpore breviores; 1mæ paulo longiores, flagello longiore quam basis; 2dæ graciliores, basi longiore quam basis 1marum, flagello breviore quam suus basis. Manus secunda *sinistra* validissima, basin rotundata, apice superno prominulo; *dextra* parvula, apicem obliquè truncata. Pedes 6 postici subæqui, longè pilosi, articulo tertio posticè fere integro.

Long. $6'''$. — *Hab.* in portu "Rio de Janeiro."

Genus II. AMPHITOË.

Gammaro affinis. *Antennæ* superiores non appendiculatæ.

A. ANTENNÆ SUPERIORES LONGIORES.

I. MARGO FRONTIS LATERALIS OPHTHALMICUS SALIENS.

1. AMPHITOE PECULANS. — Gracilis, epimeris angustis, marginem sparsim ciliatis. Antennæ subæquæ; flagellis non longioribus quam bases, teretibus, articulis oblongis, setis inferioribus longiusculis. Manus prima validiuscula, breviter subtriangulata, carpo non minore, inversim triangulato, (formâ carpi manusque simul sumtorum ellipticâ,) anticè et posticè hirsuta. Manus secunda valida, oblonga, elliptica, palmâ non excavatâ, hirsutâ, carpo hirsuto, triangulato infra anguste producto, hoc processu manum non appresso, digito longiusculo. Pedes 3tii 4ti

æqui, breves, articulo primo fere orbiculato; 5ti vix longiores; 6ti 7mi subæqui, 7mis longioribus, setis sparsis, articulo primo oblongo.

Hab. in mari "Sulu."

II. MARGO FRONTIS LATERALIS OPHTHALMICUS SALIENS.

a. Oculi reniformes.

2. AMPHITOE FISSICAUDA. — Corpus compressum, epimeris latis. Abdominis segmentum ultimum fere usque ad basin fissum. Antennæ subæquæ; 1mæ parce longiores, dimidii corporis longitudine, basi multo breviore quam flagellum et parce breviore quam basis 2darum, setis inferioribus longiusculis. Pedes 1mi parvuli, manu parce oblongâ, apicem obliquâ et non latiore. Manus secunda mediocris, angusta, infra ciliata, digito perbrevi. Pedes 6 postici subæqui, non longi, setis brevibus.

Hab. in mari juxta oras prope urbem "Valparaiso."

3. AMPHITOE PUBESCENS. — Corpus compressum, sparsim pubescens, epimeris latis. Abdominis segmentum ultimum brevius, emarginatum. Antennæ 1mæ dimidio corporis valde longiores, flagello vix breviore quam basis, setis numerosis; 2dæ dimidio fere breviores, dense hirsuti, basi fere duplo longiore quam flagellum. Manus 1ma parvula, angusta, apicem angustior. Manus 2da versus apicem angustior, dorsum recta, infra hirsuta, palmâ non impressâ, digito longiusculo. Pedes 6 postici longi, subæqui, setis rigidis, articulo primo lato.

Long. 4‴. — *Hab.* apud insulam "Pitt" Archipelaginis "Kingsmills."

b. Oculi non reniformes, fere orbiculati.

1. Palma manus secundæ lateralis. (*Gen.* MELITA, *Leachii.*)

4. AMPHITOE (MELITA) INÆQUISTYLIS. — Epimera mediocria. Antennæ 1mæ fere corporis longitudine, setis brevibus, divaricatis, verticillatis, flagello paulo longiore quam basis, terete, articulis cylindricis. Antennæ 2dæ valde breviores, basi longiore quam basis 1marum, flagello multo breviore. Pedes primi parvuli, manu brevi, apicem latiore, truncatâ; secundi validiusculi, manu oblongâ, subobovatâ, apicem paulo obliquâ, digito brevi, in latus manus claudente. Pedes 6 postici sensim parce increscentes, 6ti 7mi fere æqui, articulo primo angusto. Styli postici longiores.

Long. 4‴. — *Hab.* in sinu "Bay of Islands" Novi-Zealandiæ.

2. Palma manus secundæ marginalis.

* *Epimera quinta quartis valde angustiora.*

5. Amphitoe Peruviana. — Corpus compressum. Antennæ 1mæ corpore parce breviores, articulis tribus basalibus subæquis, flagello paulo longiore quam basis, setis perbrevibus, non divaricatis. Antennæ 2dæ basi 1marum parce longiores, basi longiore quam flagellum. Manus 1ma parva, apicem oblique truncata, parce latior. Manus 2da validiuscula basin latior, apicem angusta, palmâ vix excavatâ, digito breviusculo. Pedes 6 postici sensim parce increscentes, non longi, setis brevibus, articulo primo latissimo. Styli caudales 2di 3tiis non longiores.

Long. $5''' - 6'''$. — *Hab.* apud oras insulæ "San Lorenzo," Peru.

6. Amphitoe tenuicornis. — Epimera latiuscula. Antennæ pertenues: 1mæ dimidio corporis longiores, articulo secundo multo longiore, flagello paulo longiore quam basis, setis parce longioribus quam articuli: 2dæ parce breviores, basi longiore sive quam flagellum sive quam basis 1marum, articulis 3tio 4to subæquis. Manus 1ma parvula, oblonga, obovata, pubescens, apicem rotundata, digito sub apicem infixo. Manus 2da validiuscula oblonga, subelliptica, dorsum rectiuscula, infra dense hirsuta, palmâ non excavatâ, digito majusculo. Pedes 3tii 4tique perbreves. Pedes 5ti 6ti 7mi subæqui. Styli ultimi perbreves.

Long. $4''' - 5'''$. — *Hab.* in sinu "Bay of Islands" Novi-Zealandiæ.

7. Amphitoe Indica. — *Feminæ:* Corpus crassiusculum, epimeris mediocribus, segmento abdominis 4to apicem acuto. Antennæ 1mæ dimidio corporis longiores, articulo primo longiore, flagello longiore quam basis, setis breviusculis. Antennæ 2dæ dimidio breviores, tenues, flagello vix breviore quam basis. Manus prima parvula, oblonga, acuminata; 2da formam similis, parce major, palmâ non excavatâ, digito dimidii manus longitudine. Pedes 3tii 4tique tenues, non breviores, 6ti 7mi subæqui, 5ti breviores, articulo primo lato. Styli postici elongati.

Long. $4'''$. — *Hab.* apud oras insulæ in freto "Balabac" juxta Borneo.

8. Amphitoe rubella. — Corpus crassiusculum, epimeris latis. Antennæ 1mæ dimidio corporis longiores, articulo secundo multo longiore, flagello fere duplo longiore quam basis, articulis longis, setis perpaucis, brevibus. Antennæ 2dæ 1mis breviores, basi multo longiore

quam basis 1marum, flagello articulum precedentem fere æquante. Manus 1ma parvula, oblonga, angusta, apicem angustiore. Manus 2da valida, lata, subrectangulata, apicem transversa, palmâ apicali, excavatâ, angulo infero acuto, digito mediocri. Pedes 3tii 4ti breves; 6ti 7mi subæqui, 5ti multo breviores, setis sparsis, articulo primo latiusculo.

Long. 3‴. — *Hab.* in Archipelagine "Sulu."

9. AMPHITOE FUCORUM. — Antennæ longiusculæ, 2dæ paulo breviores, basi fere duplo longiore quam basis 1marum, flagello non longiore quam suus basis. Manus 1ma parva, apicem latior, obliqua; 2da fere elliptica, marginibus arcuatis, digito duplo breviore quam manus. Pedes 4 sequentes non breviores, subæqui; 5ti breviores; 6ti 7mi subæqui.

Hab. in mari Atlantico inter Algas natantes.

* * *Epimera quinta quartis vix angustiora.*

10. AMPHITOE TONGENSIS. — Corpus compressum nudum, epimeris latis, 5tis magnis. Antennæ 1mæ corpore breviores, articulo secundo longiore, flagello fere duplo longiore quam basis, fermè 40-articulato. Antennæ 2dæ paulo breviores, basi longiore quam basis 1marum, flagellum suum fere æquante, setis flagelli paris secundi longioribus. Manus 1ma parva, subelliptica, dorsum fere recta. Manus 2da oblonga, infra arcuata, hirsuta, supra rectiuscula, digito brevi, carpo infra producto sed non acuto. Pedes 6 postici valde inæqui, sensim increscentes.

Long. 6‴. — *Hab.* apud oras insulæ "Tongatabu."

11. AMPHITOE PEREGRINA. — *Feminæ?* Corpus gracile, epimeris latiusculis, 5tis magnis, margine sparsim ciliato. Antennæ 1mæ fermè dimidii corporis longitudine, articulo primo longiore, flagello duplo longiore quam basis, 12-articulatis, setis brevibus numerosis. Antennæ 2dæ fere dimidio breviores, basi longiore quam basis superiorum, flagello 6-articulato, subulato, paulo breviore quam basis. Manus 1ma 2da subæquæ, parvulæ, oblongæ, infra arcuatæ, digito minuto. Pedes 3tii 4ti non breviores, subæqui; 5ti 6ti 7mi non longi, sensim parce increscentes, setis minutis, articulo primo lato.

Long. 3‴. — *Hab.* inter Algas natantes maris alti prope "Valparaiso."

12. AMPHITOE BREVIPES. — Corpus compressum, epimeris latis, quintis maximis, subquadratis. Antennæ 1mæ dimidio corporis paulo

longiores, articulo primo longiore, flagello plus duplo longiore quam basis, fere nudo. Antennæ 2dæ dimidium 1marum longitudinem parce superantes, basi longiore quam basis 1marum, flagello brevi (multo breviore quam basis), subulato, infra hirsuto. Manus 1ma 2da *feminæ* subæquæ, parvulæ, breves, apicem rectè truncatæ et non latiores; palmâ apicali, digito, minuto; 2da *maris* valida, subovata, dorsum rectiuscula, prope apicem internum unidentata, digito longo. Pedes 3tii 4ti subæqui; 5ti 6ti 7mi breviusculi, sensim increscentes, articulo primo lato.

Microcheli, generi non vero, ut mihi videtur, femina *A. brevipedis* forsan pertinet.

B. ANTENNÆ SUPERIORES BREVIORES. (Genus IPHIMEDIA, *Rathke.*)

13. IPHIMEDIA SIMPLEX. — Corpus compressum, nudum, epimeris latis, quintis angustis. Antennæ 2dæ dimidii corporis longitudine, basi brevi, flagello fere nudo, plus duplo longiore, articulis perbrevibus. Antennæ 1mæ paulo breviores, basi vix breviore quam basis 1marum. Pedes toti breves: manus 1ma mediocris, angusto-ovata, apicem subacuta; 2da (feminæ?) minor, formam similis. Pedes 3tii 4ti subæqui, 2dis longiores; reliqui 6 subæqui, setis brevissimis, articulo primo latissimo, margine postico obsoletè serrulato.

Long. 4‴ – 5‴. — *Hab.* apud oras insulæ "Hermite" Fuegiæ.

14. IPHIMEDIA (ACANTHOSOMA, *Owen*) NODOSA. — Corpus crassiusculum, testâ subcalcareâ, fronte minutè rostratâ, abdomine dentato-carinato, segmentis corporis 4 anticis marginem integris, quinto sinuoso, sequentibus plus minus spinoso-dentatis aut acuto-nodosis segmentis quatuor ultimis exceptis; epimeris tribus anticis integris, obtusis, 4tis latis, posticè 2-dentatis, tribus sequentibus angustis, posticè acutis. Articulus primus pedum posticorum grandis, subquadratus postice uni-dentatus, angulum posticum acutus. Antennæ 2dæ dimidio corporis breviores, nudæ; 1mæ paulo breviores. Pedes nudi; 4 antici (feminæ?) parvuli, manubus minutis subæquis; 6 postici subæqui, articulo tertio triangulato, apice postico producto et acuto.

Long. 4‴. — *Hab.* apud oras insulæ "Hermite" Fuegiæ.

Genus III. ŒDICERUS. (*Kröyer.*)

Amphitoe pedes 4 anticos membraque buccalia affinis. Pedes septimi valde elongati, tenues, fere filiformes. Epimera mediocria.

ŒDICERUS NOVI-ZEALANDIÆ. — Parvulus. Antennæ 1mæ dimidio corporis breviores, teretes, articulis oblongis; 2dæ fere duplo longiores, flagello fermè 21-articulato, fere duplo longiore quam basis. Pedes 7mi corporis longitudine, extremitate styliformi, minutè pubescente: 4 antici inæqui, manubus ovatis, manu 1mâ parvulâ, 2dâ validiusculâ, palmâ paulo excavatâ, digito sat longo. Pedes 3tii 4ti tenues, parvuli; sequentes articulum primum angusti.

Long. 2'''. — *Hab.* in sinu "Bay of Islands" Novi-Zealandiæ.

Genus IV. ERICHTHONIUS? (*M. Edwards.*)

Antennæ elongatæ. *Pedes* primi plus minusve cheliformes, secundi valde cheliformes, digito biarticulato, pollice prominente. *Epimera* sat angusta aut latiuscula. *Cauda* subsaltatoria.

Erichthonii gressorii (caudâ non saltatoriâ), M. Edwardsio auctoritate, et epimera carentes. Forsan genus hic descriptum Erichthonio discrepat et novum. Hoc credente, genus Pyctilus (a πύκτης, *pugil*) in manuscriptis auctore institutum est.

1. Erichthonius (Pyctilus?) macrodactylus. — Corpus gracilis, epimeris mediocribus, capite oblongo, margine frontis ophthalmico producto. Antennæ elongatæ; 2dæ corpore breviores, articulis 3tio 4toque subæquis, longis, flagello paulo breviore quam basis, fermè 10-articulato, setis perbrevibus. Manus 1ma elliptica, 2-articulata, (articulo primo majore) digito brevi. Manus 2da validissima, paulo < forma, pollice prælongo, acuto, digito longiore quam manus, articulis duobus subæquis, utroque pollicis longitudinem æquante, apicem acuto, sparsim breviter hirsuto. Pedes 3tii 4ti subæqui; 5ti breves, articulo primo posticè acutè producto; 6ti 7mi paulo inæqui, postici longiores.

Hab. in mari Indiæ Orientalis.

2. Erichthonius (Pyctilus?) pugnax. — Antennarum basis 1marum flagello vix longior. Manus secunda validissima oblonga, marginibus antico posticoque fere parallelis, pollice brevi, bifurcato; digito elongato, articulis duobus inæquis primo crassiore et longiore, intus parce eroso et sparsim hirsutiusculo, duplo longiore quam pollex.

Hab. in mari Indiæ Orientalis.

Familia III. COROPHIDÆ.

Corpus plus minusve depressum, lineare, abdomine recto, articulos normali, epimeris angustissimis vel obsoletis. *Mandibulæ* palpigeræ. *Antennæ* pediformes. *Animalia gressoria.*

Genus I. COROPHIUM.

Pedes secundi non subcheliformes digito nullo 2-articulato. *Antennæ* 2dæ flagellis carentes.

Corophium quadriceps. — Caput quadratum. Abdomen posticè rotundatum. Pedes 4 antici similes, primis minoribus. Pedes 5ti 4tis breviores, articulo primo non setoso; 7mi tenues, articulo primo setoso, setis longiusculis, plumosis. Antennæ (an adultæ?) subæquæ; 1mæ parce breviores, 7-articulatæ, articulo primo longiore; 2dæ crassiusculæ, 7-articulatæ, quartam partem corporis longitudine vix superantes, articulo 3tio longiore, tribus ultimis parvulis subæquis.

Long. 1‴. — *Hab.* in portu "Rio de Janeiro."

Genus II. CLYDONIA. (*Dana.*)

Corpus elongatum, paulo depressum. Abdomen 6–7-articulatum. Antennæ quatuor; duæ elongatæ, styliformes, rectæ et rigidæ, articulo basali brevi, reliquâ parte longissimè subulatâ obsoletè multi-articulatâ. Pedes tenues, 6 postici longè filiformes, quintis longissimis.

1. Clydonia gracilis. — Antennæ longæ fere corporis longitudine, subulatæ. Oculi parvi, lenticulis 9. Styli caudales tenues, 1mi 3tiique 2dis longiores, 3tiis ramum brevem acutum ad medium ferentibus. Pedes 5ti corpore non breviores, articulo primo longissimo infra minutè spinoso, apice spinoso-producto; 7mi 5tis plus dimidio breviores. Abdominis segmenta 3 antica latere acuta, angulo postico subtruncato.

Long. 3‴. — *Hab.* in mari Atlantico, lat. bor. 1°, long. occ. 18°. — Lect. die 31 Oct., 1838.

2. Clydonia longipes. — *C. gracili* similis. Antennæ longæ fere corporis longitudine, subulatæ, parce crassiores. Pedes 7mi 5tis non dimidio breviores. Segmenta abdominis duo antica angulos posticos acuta et non truncata.

Long. 4‴–5‴. — *Hab.* in mari Pacifico, lat. aust. 18° 10′, long. occ. 126°. — Lect. die 8 Aug., 1839.

Familia IV. ICILIDÆ.

Corpus valde compressum, latum, vix lineare, abdomine articulos normali, valde inflexo. *Pedes* plerumque latè expansi instar Aranei.

Antennæ quatuor flagellis confectæ, non pediformes. *Animalia gressoria.*

Genus ICILIUS.

Antennæ elongatæ, secundæ longiores. *Pedes* non prehensiles, toti vergiformes, apicem unguiculati. *Styli caudales* sex, furcati.

ICILIUS OVALIS. — Cephalothorax ellipticus, capite brevi latè triangulato, frontem lateraque obtuso. Oculi remotissimi. Segmentum thoracis primum angustius et brevissimum. Abdomen 7-articulatum, segmentis tribus anticis ad marginem posticum medianum acutis, segmento ultimo parvulo ovato. Antennæ subteretes: 2dæ corpore longiores, flagello fere duplo longiore quam basis, tenuissimo: 1mæ fere dimidio breviores, flagello non duplo longiore quam basis. Pedes 4 antici infra densè hirsuti; 6 postici inter sese similes; 7mi 6tis valde longiores, tenues, fere nudi.

Long. 2‴. — *Hab.* in freto " Balabac," juxta Borneo.

XXIII

CONSPECTUS CRUSTACEORUM, &c.

Schizopoda. No. I.

From the American Journal of Science and Arts, 2nd Series, Vol. IX.—pp. 129–133.

CONSPECTUS CRUSTACEORUM

QUÆ IN ORBIS TERRARUM CIRCUMNAVIGATIONE, CAROLO WILKES E CLASSE REIPUBLICÆ FŒDERATÆ DUCE LEXIT ET DESCRIPSIT

JACOBUS D. DANA.

Ordo II. CRUSTACEA SCHIZOPODA.

Crustacea Macrourorum pullos affiliantia, branchiis sive externis pedes thoracis abdominisve pertinentibus, sive obsoletis; pedibus pluribus birameis palpo valde elongato; maxillipedibus pedes sequentes sæpe assimilantibus.

Tribus I. DIPLOÖPODA.

Pedes thoracis biramei, palpo natatorio, nulli prehensiles. Carapax cephalothoracem plerumque tegens, segmento cephalico non bene discreto.

Subtribus I. Mysidacea.

Corpus elongatum, subcylindricum. Basis pedum thoracicorum brevis.

1. *Pedes thoracis branchigeri.*

Fam. I. Euphausidæ.—Antennæ primæ birameæ. [In speciebus scrutatis segmentum abdominis posticum barbâ nudâ ad extremitatem utrinque armatum.]

Genus 1. Thysanopoda, (*M. Edwards*).—Oculi symmetrici, breves. Pedes thoracis quatuordecim, duobus posticis obsoletis branchiis exceptis. Flagella duo antennarum primarum elongata.

Genus 2. Euphausia, (*Dana*).—Oculi symmetrici, breves. Pedes thoracis non unguiculati, numero duodecim, quatuor posticis obsoletis branchiis exceptis. Flagella duo antennarum primarum elongata. Segmentum abdominis posticum acuminatum.

Genus 3. Cyrtopia, (*Dana*).—Oculi paulo oblongi, apicem externum obliquè gibbosi, lenticulis totis in gibbositatem versis. Articulus antennarum primarum primus apicem *inferiorem* productus. Segmentum abdominis posticum obtusum aut truncatum.

2. *Pedes thoracis abdominisve non branchigeri.*

Fam. II. Mysidæ.—Antennæ primæ birameæ, secundæ laminâ basali instructæ. [Pedes thoracis postici nunquam obsoleti?]

1. *Pedum rami ambo thoracicorum extremitatem multiarticulati.*

Genus 1. Mysis, (*Latreille*).—Pedes thoracis duodecim, maxillipedes numero sex. Antennæ primæ flagellis duobus confectæ. Pedes abdominis parvuli, debiles.

2. *Pedum ramus internus thoracicorum non multiarticulatus, bene unguiculatus. Oculi symmetrici.*

Genus 2. Promysis, (*Dana*).—Pedes thoracis duodecim, maxillipedes sex. Antennæ primæ flagellis duobus laminâque oblongâ confectæ. Pedes abdominis oblongi, natatorii, longitudinem fere æqui. [Segmentum abdominis posticum emarginatum vel bilobatum.]

Genus 3. Mysidia, (*Dana*).—Pedes thoracis sexdecim, inter sese similes, toti bene palpigeri. Antennæ primæ flagellis duobus laminâque oblongâ confectæ. Pedes abdominis quarti valde elongati, (an discrimen sexualis tantum). [Segmentum abdominis posticum emarginatum vel bilobatum.]

Syn. Themisto, *Goodsir*. Hoc quoque vocabulum generis Amphipodum auctoritatem prius.

Genus 4. Siriella, (*Dana*).—Pedes thoracis sexdecim, toti bene palpigeri, posticorum duodecim ramo pediformi apicem setis brevibus mobilibus (instar digitorum) juxta unguem instructo. Antennæ primæ flagellis duobus confectæ, laminâ carentes. Pedes abdominis toti rudimentarii. [Rostrum brevissimum. Segmentum abdominis posticum apicem rotundatum et spinulis ornatum.]

Genus 5. Myto, (Kröyer, Tids. N. R. i, 470).—Pedes thoracis quatuordecim, primi secundi tertii quartique palpigeri, quinti sexti septimi simplices. Appendices caudales segmentoque caudali connati, ideoque cauda latè triangulata, margine postico longo. Flagella antennarum primarum non articulata.

3. *Oculi e latere pedicelli externo obliquè spectantes, lenticulis totis parce obliquè versis.*

Genus 6. Loxopis, (*Dana*).—Oculi elongati. Antennæ primæ flagellis duobus confectæ, laminâ carentes. Appendices abdominis rudimentarii. [Segmentum abdominis posticum truncatum, vel obtusum, extremitate spinuloso.]*

Fam. III. Sceletinidæ.—Antennæ primæ simplices, elongatæ; secundæ birameæ.

Genus 1. Rachitia, (*Dana*).—Carapax anticè acuto-tricuspidatus, post frontem non constrictus—Oculi longi obconici. Segmentum abdominis sextum valde elongatum, [segmentis in specie scrutatâ anticis simul sumtis non longioribus, utroque spinam longam dorsalem gerente.] Antennæ primæ flagello longo tenuissimo confectæ.

Genus 2. Sceletina, (*Dana*).—Carapax anticè acuto-tricuspidatus, paulo post frontem instar colli constrictus, deinde ovatus posticè augustans. Oculi prælongi, obconici. Pedes thoracis elongati duodecim, biramei, ramo pediformi 4–5 articulato, altero

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* Podopsis, *Thompson*, (Zoological Researches, i, 59, tab. 59, fig. 1,) pullus (forsan mutilatus) incertæ sedis videtur. Oculi longissimi. Antennæ primæ fere obsoletæ; secundæ laminâ instructæ. Pedes duo longissimi, articulo tenui annulato confecti; reliqui breves. Pedes abdominis natatorii.

Sequentes *Furciliæ* et *Calyptopes* forsan pulli Decapodum aut quorundam Schizopodum; generibus jam enumeratis hoc discrepant: *Apex inferior articuli antennarum primarum primi longè acutèque productus.* Animalia scrutata tota immatura, pedibus plus minus rudimentariis.

Gen. Furcilia, (*Dana*).—Carapax plus minus rostratus. Oculi aperti. Pedes abdominis bene natatorii. Antennæ primæ furcatæ ramis (immaturis?) subæquis 1–2 articulatæ; segmentum abdominis posticum truncatum, extremitatem sæpius spinulosum. Animalia in mari alto lecta.

Gen. Calyptopis, (*Dana*).—Carapax non rostratus, oculos omnino tegens. Antennæ primæ birameæ, ramis (immaturis?) subæquis 1–2 articulatæ. [Segmentum abdominis posticum truncatum, extremitate sæpius spinuloso.]

(palpo) parce setoso; alii pedes breves quatuor, anteriores. Pedes abdominis rudimentarii. [Segmentum abdominis posticum lineare, truncatum vel emarginatum.]

Hæc animalia Luciferibus paulo affines.

3. *Pedes abdominis appendicibus branchiiformibus instructi.*

Fam. IV. Cynthidæ.—Antennæ primæ birameæ, secundæ laminâ basali instructæ.

Genus Cynthia, (*Thompson*).—Pedes thoracis quatuordecim, biramei; maxillipedes quatuor. Oculi breves symmetrici.

Subtribus II. AMPHIONACEA.*

Corpus depressum, carapace foliaceo. Basis pedum thoracicorum elongatus, palpo a corpore remoto.

Fam. I. Amphionidæ.—Corpus elongatum, abdomine longitudinem mediocri, thorace per carapacem tecto.

Genus Amphion, (*M. Edwards.*)

Fam. II. Phyllosomidæ. Corpus latus et breve, abdomine perbrevi aut rudimentario, thorace per carapacem plerumque non tecto.

Genus Phyllosoma, (*Leach.*)

Tribus II. APLOÖPODA.

Pedes thoracis nec biramei nec prehensiles. Corpus gracile, longum.

Fam. I. Luciferidæ.—Cephalothorax valde elongatus, segmento cephalico (oculos antennasque pertinente) longè attenuato. Oculi tenuiter valdeque elongati.

Genus Lucifer.—Antennæ primæ simplices, secundæ laminâ basali instructæ. Pedes thoracis quatuor postici (ct. xiii, xiv,) obsoleti; octo precedentes (ct. ix, x, xi, xii,) elongati, setigeri; deinde duo antici (ct. viii,) instar maxillipedum flexi. Maxillipedes duo (ct. vii); maxillæ quatuor (ct. v, vi); mandibulæ (ct. iv,) duæ non palpigeræ.

Tribus III. STOMATOPODA.

Os mandibulis duobus maxillisque duobus instructum, membris sequentibus pediformibus. Pedes antici (ct. vi) vergiformes, elongati; 8 sequentes chelati; 6 postici aliis remoti, sæpius bifidi.

Fam. I. Squillidæ.—Rostrum carapace per articulationem discretum.

Genus 1. Squilla.—Digitus manus maximæ intus spinoso-dentatus. Ramus pedum thoracis sex posticorum minor angustus.

Genus 2. Gonodactylus.—Digitus manus maximæ integer. Ramus pedum thoracis sex posticorum minor angustus.

Genus 3. Coronis.—Ramus pedum thoracis sex posticorum minor lamellatus.

Fam II. Erichthidæ.—Rostrum carapace non discretum. Branchiæ sæpius rudimentariæ, aut obsoletæ.

Genus 1. Squillerichthus.—Erichtho affinis. Digitus manus maximæ intus dentatus.

Genus 2. Erichthus.—Corpus latus. Pars cephalothoracis antica os precedens brevior. Carapax thoracem sæpius omnino tegens. Digitus manus maximæ intus non dentatus.

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* Genus *Cuma* cum affinibus Schizopoda et Macroura affiliat. Forsan Ordo "Cumacea" hìc cadit. his dignotus:—Oculi minuti sub carapacem celati: Pedes partim biramei: Appendices caudales prælongi, styliformes et posticè furcati.—M. Edwards, Ann. des Sci. Nat., xiii, 292; Kröyer, Tidsk. iii, 503 and ib. N. R., ii, 123; Goodsir, Jameson's J., xxxiv, 119, 1843.

Genus 3. Alima.—Corpus angustus. Pars cephalothoracis antica os precedens longior. Carapax thoracem sæpius non omnino tegens. Digitus manus maximæ intus non dentatus.*

Tribus I. DIPLOÖPODA.

Subtribus I. MYSIDACEA.

Familia 1. Euphausidæ.

Genus Euphausia.

1. Euphausia pellucida.—Gracilis. Carapax brevissimè rostratus. Segmenta abdominis margines laterales integra, arcuata. Articulus antennarum primarum primus apicem non productus. Lamina antennarum 2ndarum basalis basi paululo longior. Pedes tenuissimi, articulo ultimo brevissimo, palpo fere triplo breviore quam pes. Segmentum caudale lamellis caudalibus paulo longius, barbis subapicalibus salientibus. Branchiæ posticæ subdigitatæ.—Long. 6′′′. Incolorata.

Hab. in mari Pacifico, prope insulas "Kingsmills;" Lecta Ap. 1841.

2. Euphausia splendens.—Carapax brevissimè rostratus; segmenta abdominis quatuor margines laterales integra, subæquè obtusa. Articulus antennarum 1marum primus apicem productus. Lamina antennarum 2ndarum basalis basin non superans. Pedes tenuissimi, articulis tribus ultimis longitudine subæquis, setis longis breviter plumosis palpo plus duplo breviore quam ramus alter. Segmentum caudale lamellis caudalibus longius, barbis subapicalibus salientibus. Branchiæ posticæ ramosæ.—Long. 6′′′.—Paulo rubescens.

Hab. in mari Atlantico, lat. bor. 1°–2°, long. occ. 17°–18°. Lecta diebus 29, 30, Oct. 1838.

Euphausia gracilis.—Carapax brevissimè rostratus. Segmenta abdominis margines laterales subæquè rotundata. Articulus antennarum 1marum primus apicem parce productus et acutus. Lamina antennarum 2ndarum basalis basin multo superans. Pedes tenuissimi, articulis tribus ultimis longitudine subæquis, setis longiusculis, palpo parvulo, quadruplo breviore quam ramus alter. Segmentum caudale lamellis caudalibus non longius. Branchiæ posticæ ramosæ.—Long. 6′′′. Parce rubescens.

Hab. in mari Pacifico, lat. aust. 15½°, long. occ. 148°; lecta die Sept. 1839.

Euphausia superba.—Carapax brevissimè acutè rostratus. Segmenta abdominis margines laterales arcuata, integra, sexto non longiore. Articulus antennarum 1marum primus apicem productus et obtusus. Lamina antennarum 2ndarum basalis basi vix brevior. Articulus pedum ultimus pertenuis, penultimo multo brevior. Branchiæ posticæ instar rotæ paulo involutæ, ramis subradiatis, arcuiformibus, ramulis seriatis setiformibus. Segmentum caudale laminâ caudali proximâ paululo brevius.—Long. 2′′. Rubra.

Hab. in mari Antarctico, prope long. orient. 150° et lat. aust. 60°.

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* Longitudo carapacis discrimen Erichthi et Alimæ non semper valet; longitudo partis cephalothoracis os precedentis melius.

XXIV

CONSPECTUS CRUSTACEORUM, &c.

Isopoda. No. I.

From the American Journal of Science and Arts, 2nd Series, Vol. VIII.—pp. 424–427.

CONSPECTUS CRUSTACEORUM

QUÆ IN ORBIS TERRARUM CIRCUMNAVIGATIONE,

CAROLO WILKES E CLASSE REIPUBLICÆ FŒDERATÆ DUCE,

LEXIT ET DESCRIPSIT

JACOBUS D. DANA.

(Continued.)

CRUSTACEA ISOPODA.

Appendices abdominales, duobus posticis exceptis, plerumque branchiiformes, stylis caudalibus duobus aut nullis. Pedes thoracis 6 antici ad eandem seriem pertinent, 8 postici ad seriem alteram,[*] exceptionibus raris (in *Isopodis brachiatis.*)

I. ISOPODA BRACHIATA.

Pedes seriei posticæ sex.[†]—Species Amphipodis affines (præcipuè Dulichiis); habitum Caprelloideæ; sæpius algas, corallinas, etc. a pedibus sex posticis affixæ cum corpore arrecto.

Familia 1. ARCTURIDÆ. (Idotæoideæ.)

Pedes sex postici inter sese unguiculati similes.—Abdomen pauciarticulatum, laminis operculiformibus infra opertum (sicut Idotæis), stylis caudalibus carens.

Genus 1. LEACHIA,[‡] *Johnston.*—Pedes 8 antici ciliati, non unguiculati. Antennæ superiores perbreves, 4 articulatæ; inferiores longæ, pediformes, ungue 1–3 articulato confectæ. Segmentum thoracis quartum prælongum.

LEACHIA NODOSA.—Corpus tuberculosum. Segmentum thoracis quartum valde elongatum anticè latius et utrinque cuspidatum. Abdomen

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[*] Amphipodis (etiam Isopodis rarissimis) series antica *octo* pedes, et *sex* postica; quoque, styli caudales *sex*, et alii appendices abdominales *natatorii.* Hæc discrimina optima et non negligenda.

[†] Hâc charactere species illæ aliis Isopodis remotæ et Amphipoda osculant.

[‡] *Arcturo*, antennis inferioribus flagello non confectis et segmento thoracis quarto prælongo, differt.

2-articulatum, segmento primo transverso, secundo oblongo, prope apicem latiore, posticè rotundato, prope basin utrinque emarginato. Antennæ superiores tenues, articulis duobus inferiorum primis parce longiores; inferiores pediformes, 6-articulatæ, fere corporis longitudine, articulo quinto breviore quam quartus, sexto (ultimo) brevi, unguiformi, fere recto, infra parce setuloso.—Long. 6‴.

Hab. prope insulas Mangsee in freto Balabac.

Familia 2. TANAIDÆ.

Pedes 2 antici manu validâ instructi, reliqui unguiculati, mediocres, sex posticis inter sese similibus. Abdomen 5–6-articulatum, appendicibus decem subnatatoriis, stylis caudalibus articulatis.

Genus 1. TANAIS, *Edwards.*—Corpus lineare. Caput perbreve. Segmentum thoracis primum oblongum. Antennæ quatuor, breviusculæ, superiores flagello non confectæ. Abdomen 5–6-articulatum. Pedes antici breves, crassè cheliformes.

1. TANAIS BRASILIENSIS.—Pedes antici crassi, manu ad basin paulo angustiore, pollice non crassiore quam digitus. Antennæ primæ paulo majores, corpore quadruplo breviores, 5-articulatæ; secundæ 6-articulatæ, articulis duobus basalibus paulo crassioribus. Abdomen 6-articulatum, posticè rotundatum et medio apiculatum, segmentis subæquis, ultimo non majore, ad apicem apiculato. Styli caudales 6-articulati. Segmentum thoracis septimum sexto brevius.

Hab. in portu Rio de Janeiro.

2. TANAIS ELONGATUS.—Gracilior. Pedes antici crassi, manu ad basin non angustiore, pollice crassiore quam digitus intus angulato et setam gerente. Antennæ primæ 4-articulatæ; secundæ 4-articulatæ, paulo breviores. Abdomen pubescens, 6-articulatum, posticè rotundatum, segmento ultimo majore, semicirculari. Styli caudales biramei ramo longiore 2-articulato, altero 1-articulato. Segmenta thoracis quatuor postica subæqua, fere quadrata.

Hab. in mari Sulu.

Genus 2. LEPTOCHELIA, *Dana.*—*Tanai* similis. Pedes antici longissimi, tenuissimi, manu valde elongatâ. Antennæ superiores longæ, flagello confectæ. Abdomen 6-articulatum, stylis caudalibus articulatis.

LEPTOCHELIA MINUTA.—Corpus lineare. Pedes antici corpore valde longiores, manu fere corporis longitudine, digito polliceque tenuissimis, incurvatis, nudis, pollice prope apicem intus dentigero. Antennæ superiores corpore paulo longiores, basi elongato, 4-articulato, articulo secundo longiore, flagello 6–7-articulato, vix longiore quam articulus basalis secundus.

Hab. prope insulas "Viti" in mari Pacifico.

II. ISOPODA AMBULATORIA.*

Pedes seriei posticæ octo in his et totis Isopodis normalibus. Membra buccalia nullo modo suctoria. Abdominis appendices sexti sive operculiformes sive styliformes, nunquam ad natandum apti.

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[*] "Isopodes Marcheurs" Edwardsii, *Arcturo*, *Leachiâ*, *Tanai* et affinibus exclusis.

Familia 1. Idotæidæ.

Abdomen pauci-articulatum, articulo ultimo maximo, laminis duobus operculiformibus infra opertum, stylis caudalibus carens. Mandibulæ non palpigeræ.

Subfamilia 1. Idotæinæ.

Pedes toti inter sese subsimiles, plerumque ambulatorii.

Genus IDOTÆA, *Fabricius.*—Segmenta thoracis subæqua. Antennæ externæ (vel inferiores) valde longiores, non geniculatæ, flagello multiarticulato confectæ. Abdominis opercula simplicissima, prope apicem articulati. Pedes quarti tertiique non valde inæqui.

1. Idotæa argentea.—Angusto-subelliptica anticè truncata vel obsoletè excavata, superficie æqua et lævis. Epimeræ latiusculæ. Abdomen 3-articulatum, segmentis duobus transversis, tertio oblongo, ad apicem paulo angustiore et truncato-rotundato, prope basin utrinque suturâ notato. Antennæ internæ dimidio basis externarum vix longiores. Antennæ externæ fere dimidii corporis longitudine, flagello 7-articulato, breviore quam basis, articulis 2 ultimis minutis.—Long. 5‴. Argentea et ad latera cærulescens.

Hab. in mare Pacifico, lat. aust. 77°, long. occid. 109°, super Porpitam.

2. Idotæa annulata.—Angusto-subelliptica, fronte truncata, obsoletè arcuata, superficie annulatâ segmentis prominulis. Epimeræ latiusculæ. Abdomen 3-articulatum, segmentis duobus transversis, tertio oblongo, lateribus fere parallelis, ad apicem truncato cum angulis rotundatis, prope basin suturâ utrinque notato. Antennæ internæ dimidio basis externarum non longiores. Antennæ externæ fermè dimidii corporis longitudine, flagello breviore quam basis, 7-articulato, articulis 2 ultimis non breviores.—Long. 9‴. Brunnescens.

Hab. in mare Antarctica.

3. Idotæa brevicauda.—Angustè ovato-elliptica, anticè posticèque truncata et medio minutè apiculata. Caput transversum, posticè segmento proximo amplexum. Abdomen 3-articulatum, segmentis duobus breviter transversis, tertio oblongo, posticè paulo angustiore, angulis rotundatis, prope basin suturâ notato. Antennæ internæ dimidio basis externarum non longiores. Antennæ externæ dimidium corporis longitudine vix superantes, articulo secundo brevi et ad apicem externum producto, flagello 9–10-articulato, paulo longiore quam basis.—Long. 6‴—9‴. Brunnescens.

Hab. in portu "Rio de Janeiro."

Genus EPELYS, *Dana.*—Antennæ breves subæquæ, externæ non geniculatæ, flagello non confectæ. Pedes subæqui, quarti tertiique non valde inæqui. Oculi minuti, remoti.

Epelys annulatus.—Angusto-subelliptica. Caput transversum, mediâ fronte apiculatâ, angulis rotundatis. Segmenta thoracis transversa, subæqua, prominentia. Abdomen 2-articulatum; segmento primo brevissimo, fere obsoleto, valde angustiore quam secundum; secundo scutellato, posticè triangulato, obtuso, lateribus mediis fere parallelis.

Antennæ breves, latitudine capitis non longiores; internæ parce breviores, 4-articulatæ; externæ 5-articulatæ.—Long. $2\frac{1}{2}'''$.

Hab. ad oras prope Valparaiso, super corpus speciei Asterias.

Genus CLEANTIS, *Dana.*—Antennæ externæ valde longiores, non geniculatæ, 5–6-articulatæ, flagello non confectæ. Pedes quarti paris tertiis valde breviores, et parium quartuor ultimorum sensim longitudine increscentes. Abdominis opercula prope apicem articulata et ad articulationem laminam parvulam internam gerentia.

Cleantis linearis.—Angusto-linearis, fronte truncata et parce excavata. Caput paulo transversum, posticè profundè arcuatum, segmento proximo amplexum. Oculi mediocres, reniformes, remoti. Segmenta thoracis paulo transversa. Abdomen 3-articulatum, segmentis duobus transversis, tertio lineari, angulis posticis truncatis, apice truncato aut obsoletè excavato, prope basin suturà notato. Antennæ internæ parvulæ, dimidio externarum valde breviores; externæ crassiusculæ, articulo ultimo ovato, pubescente. Pedes tertii primis duplo longiores.

Hab. ad oras prope Rio Negro Patagoniæ.

Genus ERICHSONIA, *Dana.*—Antennæ externæ valde longiores, geniculatæ, 6-articulatæ, flagello nullo. Pedes subæqui, similes.

Erichsonia angulata.—Elongato-elliptica. Caput et segmenta thoracis ad margines angulata, transversa. Frons excavata, duobis tuberculis supra armata. Segmenta thoracis quatuor antica tuberculum medianum gerentia. Oculi laterales. Abdomen uni-articulatum, oblongum, subscutellatum, margines sinuosum, posticè paulo latius, deinde triangulatum, obtusum. Antennæ internæ fere quadruplo breviores, 4-articulatæ; externæ clavatæ, dimidio corporis longiores, 5–6-articulatæ, articulis tribus ultimis subæquis, penultimo breviore, ultimo obtuso clavato breviter hirsuto. Pedis articulus basalis crassus et tuberculatus.

Hab. in portu Rio de Janeiro.

Subfamilia 2. Chætilinæ.

Pedes sexti longissimi, setiformes et multiarticulati, non unguiculati; septimi fere similes.

Genus CHÆTILIA, *Dana.*—Antennæ primæ super secundas insitæ; superiores longiores; inferiores flagello multiarticulato confectæ. Pedes septimi sextis valde breviores, non unguiculati, parce multiarticulati. Abdominis opercula prope apicem articulata et ad articulationem lamellam parvulam internam gerentia.

Chætilia ovata.—Ovata, posticè acuminata. Thorax 7-articulatus, segmento septimo parvulo et partim celato, sexto utrinque acuto. Abdomen 4-articulatum, tribus segmentis transversis, quarto angusto-triangulato, ad apicem subacuto et ciliato. Antennæ lateraliter reflexæ; superiores fere dimidii corporis longitudine, 5-articulatæ, articulis duobus perbrevibus et crassis, tribus reliquis tenuibus, longis, ultimo extus subtiliter setuloso. Antennæ inferiores valde breviores, flagello fermè 10-articulato, articulis basis duobus ultimis anticè setulosis, posticè pubescentibus. Pedes sexti corpore fere duplo longiores, minutè multiarticulati. Pedes septimi perbreves.—Long. $9'''$.

Hab. in mari prope Rio Negro Patagoniæ.

New Haven, October, 1849.

ON THE

CARCINOLOGICAL COLLECTIONS

OF THE

CABINETS OF NATURAL HISTORY

IN THE

UNITED STATES.

WITH AN ENUMERATION OF THE SPECIES CONTAINED THEREIN,
AND DESCRIPTIONS OF NEW SPECIES.

By LEWIS R. GIBBES.
Prof. Math. in College of Charleston, S. C.

FROM PROCEEDINGS OF THIRD MEETING OF AMERICAN ASSOCIATION FOR
ADVANCEMENT OF SCIENCE.

CHARLESTON, S. C.
STEAM-POWER PRESS OF WALKER AND JAMES.
1850.

3

CARCINOLOGICAL COLLECTIONS

IN

CABINETS IN THE UNITED STATES.

I HAVE in the last few years visited the Cabinets of Natural History belonging to the Societies devoted to that Science in the cities of Boston, New-York and Philadelphia, and examined the collections of Crustacea contained in them. With permission of the respective Societies, I labelled their specimens in a mode nearly uniform in all, and furnished each with a Catalogue of those belonging to their Cabinet. I now propose embodying these separate enumerations in one to be laid before the Association, enlarging it in some measure by the enumeration of those in my own Cabinet, (the largest I believe at the South,) adding notes on the most remarkable species among those already described, and short descriptions of those that are new, chiefly from my own collection. These new species will be indicated by an * prefixed, and species already described, I have found it necessary to change, by a †. I shall thus endeavour to present a view of the present state of the Carcinological Collections of the United States, and of the facilities that may be enjoyed by those studying this department of Natural History, due allowance being made for additions that may be made to collections where the proprietors are tolerably active, and losses that may be sustained by the ravages of insects, and by accidents that will occur in handling specimens so fragile as those of Crustacea. The Cabinet of the Boston Society of Natural History, was examined in 1845 and 1846; that of the Lyceum of Natural History, of New-York, in 1846 and 1847; that of the Academy of Natural Sciences, of Philadelphia, in 1847; the enumeration may be considered as representing the state of my own Cabinet at the end of 1849. These collections will be referred to as the Boston, New-York, Philadelphia and Charleston Cabinets. The American Museum in New-York has a small collection of Crustacea in good condition, and on examining it I found several species not contained in the other Cabinets; I regret therefore not having inquired for collections in public museums in other cities. These unique specimens of the American Museum are included in the following enumeration. In the rooms of the Patent Office at Washington, the collection of Crustacea of the Exploring Expedition are exposed to public view, but I sought no opportunity of studying them more closely, not regarding them as open to the public for that purpose. There were several already known species among them, which, however, I then saw for the first time, and should be glad of an opportunity to examine the collection at some future day. Only the Podophthalmian Crustacea are included in the following Catalogue, not only because I have paid less attention to the lower orders, but also because few of them are found in the collections.

To increase the value of this Catalogue, I will add the localities for the species proceeding from the Coast or Territory of the United States, distinguishing these localities by *italics*.

ENUMERATION OF CRUSTACEA.

DECAPODA.

A. BRACHYURA.

1. FAMILY OXYRHINCHA.

1. TRIBE MACROPODIANA.

LEPTOPODIA SAGITTARIA, LEACH—Philadelphia Cabinet. From the West Indies and the Gulf of Mexico, not yet positively known to inhabit the Coast of the United States.

LEPTOPODIA CALCARATA, SAY—Philadelphia Cabinet. Of SAY's original specimen, all that remains is the stomachal region of the shell, with the eyes and rostrum attached. This was found in *Charleston Harbour*. I do not know that a second specimen has ever been found.

STENORHYNCHUS PHALANGIUM, LAMK—Boston Cabinet.

STENORHYNCHUS LONGIROSTRIS, M. EDW.—Charleston Cabinet.

INACHUS SCORPIO. M. EDW.—Boston Cabinet.

INACHUS THORACICUS, ROUX—Boston and Charleston Cabinet.

2. TRIBE MAIANA.

LIBINIA CANALICULATA, SAY—Boston, New-York, Philadelphia, and Charleston Cabinets. From the *Coast of the United States*, from Massachusetts to South-Carolina. In a collection of Crustacea brought me from Key West, by Dr. WURDEMANN, there are no specimens of this crab, nor do I recollect seeing it in other collections from the same place.

LIBINIA DUBIA, M. EDW.—Boston, New-York, Philadelphia, and Charleston Cabinets. From the *Coast of the United States*—Key West to Charleston. I do not know how much further North it ranges, nor whether the specimens in each of the northern collections proceeded from the adjacent coast. DE KAY regards this as the young of the preceding, but I regard them for the present, at least, as distinct species, although it must be acknowledged no absolute character can be indicated by which they may at once be separated.

The distinctive characters are rather comparative than absolute, *L. dubia* is more pyriform and less circular in outline, as viewed from above, than the preceding; the central region of its shell is less depressed, and the spiniform tubercles fewer; or more accurately, what may be termed the spines proper, on the surface of the shell and around its lateral edges, are, with few exceptions, precisely the same in number and position in both species, but *L. canaliculata* has in addition, a number of spiniform tubercles, appearing like undeveloped spines, distributed between the spines proper. These differences are not those of sex, for I have males and females of both forms; nor of locality, for I have both forms from Charleston Harbour; nor of age, at least, not of size merely, as my specimens exhibit all ranges of sizes for each set of characters. Possibly, the internal anatomical details would furnish some distinctive character. *L. dubia* appears to be the most prevalent form along the southern coast.

Libinia affinis, Randall—Philadelphia Cabinet. This so closely resembles *L. dubia*, that if from the Atlantic coast, I should not regard it as different, but as it comes from Upper California, I cannot venture to pronounce them the same.

Herbstia parvifrons, Randall—Philadelphia Cabinet. From Western Coast of America.

Pisa tetraodon, Leach—Boston, New-York, and Charleston Cabnets. From the Coast of Europe.

Pisa bicorna. Boston, New-York, and Charleston Cabinets. My specimens are from *Key West*, where it appears to be common. Shell triangular, tuberculous, branchial regions developed, and each armed with a single moderate spine; rostrum of moderate length, horns diverging from their base; terminal tooth of the basilar segment of the external antennæ prominent, surpassing in length the anterior angle of the upper orbitar edge; ocular peduncles not closely sheathed by the orbits but capable of being folded back; lower orbitar edge with a notch, which is smaller in proportion than in the *P. tetraodon*; claws or first pair of feet, in the male with large hand, finger and thumb, when closed, touching by their sharp finely serrated edges at their tips, and leaving a wide opening between them elsewhere, as in *P. tetraodon*; body covered moderately with a brownish down, hands bare, and marked with reddish brown spots, (in the dry specimen,) on a light ground. In the female, first pair of feet but little larger than the rest, finger and thumb in closing, fitting nearly accurately. This species I regard as the *Pericera bicorna* of

Milne Edwards, and have so labelled it in some of the collections, but it will be seen by the description that it really belongs to the genus *Pisa.*

* Pisa mutica—Charleston Cabinet. This small species was found in *Charleston Harbor*, off White Point Battery. Length of rostrum, reckoned from interantennary spine, one-fourth the length of the rest of the body, horns united for the lower third, diverging afterwards; body triangular, without tubercle or spine, of moderately uniform convexity, stomachal region somewhat developed; eyes capable of folding back, the orbit incomplete, especially on the lower side, no spine on the upper orbitan edge; basilar segment of the external antennæ narrow, without any spine, and the antennæ visible on each side of the rostrum when viewed from above. Length 0.45 of an inch from tip of rostrum to posterior edge of carapace. Female with eggs.

Lissa fissirostra, Say—Boston, Philadelphia and Charleston Cabinets. *Northern coast of United States*, as far south as Long Island, according to DeKay. Although the form of the rostrum forbids our retaining this species in the genus *Lissa*, I continue to use Say's original name, as I have had no opportunity of comparing it with *Hyas coarctata* from the British coast, with which some of our naturalists regard it as identical. It appears to me to resemble *Hyas aranea*, judging from Herbst's figure. The first segment of the moveable portion of the external antennæ is very slightly enlarged externally.

* Hyas aculeata—Boston and Charleston Cabinets. Brought *from Key West* by Dr. Wurdemann, *from Florida* by Mr. Bartlett. Body sub-rotund, convex, somewhat tuberculous above in the female, smooth and polished in the only male specimen I have, lateral edges armed with five spines on each side, not including the angles of the orbits, the middle spine and the one anterior to it sometimes appearing united, forming a bifurcated spine, particularly in the male; orbits directed forwards and outwards, with a spine at outer angle, two at the inner, one above and one below, an obsolete fissure at the upper edge of the orbit, and another at the lower; first moveable segment of the external antennæ flat, broad, extended into a wing externally, which also projects forwards for half the length of the next segment, and both segments clothed with ciliæ; rostrum bifid, short, barely the length of the first segment of the external antennæ; third segment of the external jaw-feet dilated outward at the external angle. Length one inch.

Chorinus heros, Leach—New-York, Philadelphia and Charleston Cabinets. *From Key West.* The specimens I have labelled thus in the collections are nearly uniform in size and appearance, agree in the main with the description of M. Edwards, but are little more than an inch in length, with the first pair of feet scarcely reaching to tip of rostrum. They may be the young, or it is possible that they form a distinct species; but I will not venture to decide without a further supply of specimens.

Mithrax spinosissimus, M. Edw.—Philadelphia and Charleston Cabinets. My specimens are *from Key West.* An individual in the Philadelphia collection is of unusual size. Shell 7 inches in length, as many in breadth, and 3 inches thick; hand and finger 7 inches long, 2 1-2 broad; whole length of one of the first pair of feet 13 inches. Several fine specimens of this crab in the American Museum, New-York.

Mithrax verrucosus, M. Edw.—Boston and Charleston Cabinets. My specimens are *from Key West.*

Mithrax hispidus, M. Edw.—Boston, New-York, Philadelphia and Charleston Cabinets. Those in the Boston Cabinet were brought *from Florida* by Mr. Bartlett; the one in my own (a young male) was *taken off Charleston Harbor.*

Mithrax sculptus, M. Edw.—Boston, New-York, Philadelphia and Charleston Cabinets. My specimens are *from Key West,* where it appears to be very common.

Maia verrucosa, M. Edw.—Boston, New-York and Charleston Cabinets.

Micippa cristata, Leach—New-York Cabinet. This species is rare in our cabinets, there being only a single shell at New-York.

Pericera cornuta, M. Edw.—Boston, Philadelphia and Charleston Cabinets. There is also a specimen in the American Museum, New-York. That in my Cabinet came *from Key West.* The specimen in the Philadelphia Cabinet has been described by Dr. Randall (Jour. Acad. Nat. Sci., vol. viii, p. 108,) as new under the name of *Chorinus armatus;* his description will be found to apply to *Pericera cornuta* in every respect, and a reference to the figure given in Hughes' Natural History of Barbadoes, pl. 25, fig. 3, or to Herbst, pl. 59, fig. 6, will complete the proof that it has been already described.

Pericera trispinosa, M. Edw.—Charleston Cabinet. *From Key West,* brought by Dr. Wurdemann.

Acanthonyx lunulatus, M. Edw.—Boston and Charleston Cabinets.

Epialtus bituberculatus, M. Edw.—Charleston Cabinet. Brought *from Key West* by Prof. W. H. Harvey, and agrees perfectly with Milne Edwards' description and figure of individuals said to come from the coast of Chili.

Epialtus productus, Randall—Philadelphia Cabinet.

Epialtus nuttalii, Randall—Philadelphia Cabinet. *From Upper California.* A single shell of *E. Nuttalii* is in the New-York Cabinet. These two species appear to be new and well-marked.

3. TRIBE PARTHENOPIANA.

Lambrus longimanus, Leach—Boston Cabinet.

Lambrus angulifrons, M. Edw.—New-York Cabinet.

Lambrus echinatus, M. Edw.—Philadelphia Cabinet and American Museum, New-York.

Lambrus mediterraneus, Roux—Boston and New-York Cabinets.

Parthenope horrida, Leach—Philadelphia Cabinet.

Cryptopodia fornicata, M. Edw.—Boston Cabinet. Shell in outline triangular, with the lateral angles much rounded, and the posterior edge, the base of the triangle, nearly straight, latero-anterior edges dentate; from each orbit a ridge runs backwards, curving outwards, and becomes effaced before reaching the edge of the shell, and from these two ridges the surface of the shell slopes down outward and forwards; at the middle of the length of the shell a transverse ridge connects these, and from it the surface of the shell slopes backwards; third segment of first pair of feet dilated towards articulation, with carpus, dentated on anterior edge; hand triangularly prismatic, upper and outer edges lamellar, with prominent and distant teeth; third segment of the other feet furnished with lamellar lanciniate teeth, only the second and third pair when extended, exhibiting their tips beyond the vaulted edge of the shell. This description of a well-known species is given to introduce more distinctly the following new one from our own coast.

* Cryptopodia granulata—Charleston Cabinet. Shell triangular, with the lateral angles sharp, middle two-thirds of posterior edge prominent in a regular curve, latero-anterior edges slightly crenate; ridges from the orbits running back but a third of the length of the shell, and meeting with a short transverse ridge; from the two extre-

mities of this, two ridges run backward, parallel with the latero-anterior edges of the shell, until they reach the posterior edge at the two extremities of its curved portion, and with it circumscribe a sub-triangular space, in the centre of which is a tubercle; third segment of first pair of feet not at all dilated, or but slightly so; the four other pair without spines, and when folded, wholly concealed under the lateral arches of the shell—when extended, exhibiting their two last segments; upper and outer edges of the hand, which is triangularly prismatic, granulate, as also the posterior edge of the shell, the two ridges running to it, the transverse ridges of the segments of the abdomen, and other lines on the body. Rostrum lamellar short, but well-marked. Length 0.45 of an inch, breadth 0.60; length of preceding species an inch and a half nearly, breadth two and a half. The first specimen of this species was obtained by Dr. T. L. Burden, of Charleston, near Kiawah Island, drawn up on a bit of sponge by a hook and line; a second was found by myself at the eastern end of Sullivan's Island, the day after the gale in October, 1848, and a third and fourth I obtained on the 18th August, 1849, at *White Point Shoal, Charleston Harbor;* of these, two were females, of the size given above—the others, males, of only half those dimensions. Abdomen of seven segments in both sexes.

2. FAMILY CYCLOMETOPA.

1. TRIBE CANCERIANA.

Cancer limbatus, M. Edw.—Philadelphia Cabinet.

Carpilius corallinus, M. Edw.—Boston, New-York, Philadelphia and Charleston Cabinets. From the West Indies.

Carpilius maculatus, M. Edw.—New-York Cabinet. From the West Indies.

Carpilius convexus, Ruppell—New-York Cabinet. Ruppell's specimens were from the Red Sea.

* Carpilius lividus.—This small species is in the New-York Cabinet, sent from the Sandwich Islands. Shell dark livid or purple color when taken out of spirits, moderately convex, smooth without fur rows, slightly punctate; middle portion of the frontal edge slightly prominent; latero-anterior edges obtuse, terminated behind by an obtuse tooth or tubercle; length three-fourths of an inch.

* Carpilius prætermissus.—Specimens of this species are in the

Boston, New-York and Charleston Cabinets, and I have more than once seen them in the small cases of Chinese insects brought to this country, but have not been able to find either figure or description of it in any of the works to which I have access; these are so few as perhaps hardly to warrant the step I have taken—that of imposing a name on it. Shell arched anteriorly, narrowed posteriorly, convex longitudinally, smooth and polished, with no distinction of regions, marked with about 25 reddish colored spots distributed symmetrically on a light ground; latero-anterior edges obtuse, without dentation of any kind, and wanting even the rounded tubercle, in which they terminate in the other species of the genus; front with a minute fissure, curved in outline, so as to present four lobes very slightly prominent, and marked transversely with a punctate line; orbits oval, without tooth or fissure; the hiatus between their lower edge and the front filled by the basillar segment of the exterior antennæ, which joins the front, the moveable peduncle lying in the fissure; hands robust, moderately compressed, punctate, without crest, spine or tubercle, fingers trenchant, not spoon-shaped; four last pair of feet compressed, without crest or spines, marked with spots like the body.

LAGOSTOMA NODOSA, RANDALL—Philadelphia Cabinet, Sandwich Islands.

XANTHO FLORIDUS, LEACH—Boston and New-York Cabinets.

XANTHO RIVULOSUS—M. EDW.—Charleston Cabinet.

* CHLORODIUS FLORIDANUS—Charleston Cabinet. Brought *from Key West* in numbers, by Dr. WURDEMANN in 1845, and lately by Prof. W. H. HARVEY. Shell depressed, broader than long, rendered uneven by low prominences, separated by shallow groves, these prominences or flat knobs marked with transverse plications; front, of two truncated lobes, separated by a fissure, anterior edge of lobes grooved; latero-anterior edges armed with five triangular teeth pointing forwards, the anterior one forming the angle of the eye; basal portion of external antenna filling the hiatus and touching the front, the peduncle being lodged in the hiatus; third segment of the anterior feet short, just reaching edge of shell, carpus and hand, stout in the male, somewhat corrugated, spotted with red, finger and thumb brownish black, toothed on their opposing edges, spoon shaped at tip, with a tuft of hair in the cavity; other pairs of legs villose; third segment of foot jaws slightly notched on its anterior edge. Length 0.75 of inch, breadth 1.10 of inch.

PANOPEUS HERBSTII, M. EDW.—Boston, New-York, Philadelphia and Charleston Cabinets. Common on *Coast of New-York*, according to DEKAY; common in *Charleston Harbour;* brought me *from Key West* by Dr. WURDEMANN.

PANOPEUS LIMOSUS, M. EDW.—Philadelphia and Charleston Cabinets. *Coast of New-York*, DEKAY; I have obtained them on the coast of *South-Carolina*, and have them from *Smyrna*, *Fla.*, and from *Key West.*

* PANOPEUS WURDEMANNII—Charleston Cabinet. Brought me from *Enterprize*, *Fla.*, by the late Dr. F. WURDEMANN, who recognized as distinct from *P. Herbstii*, the young of which it most nearly resembles, and whose females are also frequently found carrying their eggs in the usual manner, when not larger than the present species. This species is, however, easily distinguished; the anterior edge of the front is marked by a grove, (not apparent in either of the preceding species,) whose borders are formed by finely granulated ridges; the surface of shell also is marked by a few distinct transverse ridges, which never appear so well marked in *P. Herbstii*, even when of larger size; the finger and thumb in this species are white; length 0.5 of inch, breadth 0.7 of inch.

PSEUDOCARCINUS RUMPHII, M. EDW.—Boston and Charleston Cabinets; also, in the American Museum, New-York.

†PSEUDOCARCINUS MERCENARIUS—Boston, Philadelphia and Charleston Cabinets. This is the *Cancer mercenaria* of SAY, (Jour. Acad. Nat. Sci., vol. i, p. 448,) abundant along our Southern Coast, from *Charleston Harbour to Key West*, and known as the Stone Crab. It is referred by MILNE EDWARDS, with some doubt, to the genus *Xantho*, of LEACH, (M. EDW. Hist. Crust. tome i, p. 399,) and also by DEKAY, (New-York Fauna, Crustacea, p. 4,) and I have so labelled it in the Boston Cabinet; but I have no hesitation in referring it to M. EDWARDS' own genus *Pseudocarcinus*, and feel confident he had it before him when writing his description of *Pseudocarcinus ocellatus*, (op. cit., p. 409.) His description applies in every particular, but is short. The country of his specimens he says is unknown.

ETISUS LÆVIMANUS, RANDALL—Philadelphia Cabinet.

PLATYCARCINUS PAGURUS, M. EDW.—The only specimen of this species that I have seen, is in the American Museum in New-York, apparently of full dimensions, 5 or 6 inches in length, 8 inches in breadth.

PLATYCARCINUS IRRORATUS, M. EDW.—Boston, Philadelphia and

Charleston Cabinets; also, in the American Museum, New-York. This is the *Cancer irroratus* of Say, or rather what he regarded as the female of the species so named by him. It is found on the coast of the New-England States, I have not met with it at the south.

Platycarcinus Sayi, Dekay—Boston, New-York and Charleston Cabinets. This species was regarded by Say as the male of his *Cancer irroratus*, and was separated from that species by Dr. A. A. Gould, as *Cancer Sayi.* I have collected it on the *Coast of Massachusetts*, and on the *Coast of New-Jersey;* I have also a specimen taken by fishermen off *Charleston Harbour*, and have seen one other specimen taken on the *Coast of South-Carolina.*

Platycarcinus productus, Randall—Philadelphia Cabinet. A distinct species from the three others, brought from the Western Coast of North America.

Pilumnus aculeatus, M. Edw.—Philadelphia and Charleston Cabinets. The *Cancer aculeatus* of Say. My specimens are from the *Coast of South-Carolina*, inhabiting sponges, &c.

Pilumnus villosus, Risso.—Charleston Cabinet.

Eriphia spinifrons, Latr.—Boston, New-York and Charleston Cabinets.

Eriphia gonagra, M. Edw.—Boston, Philadelphia and Charleston Cabinets. My specimens are *Key West*, whence Dr. Wurdemann brought me several.

Trapezia cymodoce, Guerin—Philadelphia and Charleston Cabinets.

2. Tribe Portuniana.

Carcinus mænas, Leach—Boston, New-York, Philadelphia and Charleston Cabinets. *From the Coast of New-England States.*

Platyonichus ocellatus, Latr.—Boston, New-York, Philadelphia and Charleston Cabinets. Dr. Gould enumerates it among the Crustacea of *coast of Massachusetts*, I have collected it on the *coast of New-Jersey*, and on the *coast of South-Carolina*, and a single specimen was brought me from *Key West.* It is the *Cancer ocellatus* of Herbst, and the *Portunus pictus* of Say.

Portunus puber, Leach—New-York Cabinet.

Portunus plicatus, M. Edw.—Boston and Charleston Cabinets.

Portunus marmoreus, Leach—New-York and Charleston Cabinets.

Portunus corrugatus, Leach—Boston and Charleston Cabinets.

Portunus Rondeletii, Risso—Boston and Charleston Cabinets.

Lupa tranquebarica, M. Edw.—Boston and New-York Cabinets.

Lupa dicantha, M. Edw.—Boston, New-York, Philadelphia and Charleston Cabinets. Inhabits *coast of Massachusetts*, according to Gould; I have seen it in abundance in the markets of *New-York and Philadelphia;* it abounds in *Charleston Harbour*, and I have specimens from *Key West.* Demerara is the most southern point from which I have seen it. In the specimens from Charleston Harbour and northwards, the middle spines of the front are obsolete, but distinct in those from Key West and Demerara. This crab is the *Lupa hastata* of Say.

† Lupa Sayi—Boston and Charleston Cabinets. This crab is not uncommon on the *coast of South-Carolina*, whence my specimens proceed, and I regard it as the *Lupa pelagica* of Say, but as it is not the *Lupa pelagica* of Leach, Milne Edwards and others, I have attached to it the name of its first describer; his description applies perfectly to it, but the specimen to which his original label is affixed in the Philadelphia Cabinet, does not belong to this species; perhaps some interchange of labels has taken place. Dekay, in the Fauna of New-York, pl. 6, fig. 8, gives a recognizable figure of it, but that will scarcely give an adequate idea of the beauty of its coloration when first taken from its native element.

Lupa cribraria, M. Edw.—Philadelphia and Charleston Cabinets. *From coast of South-Carolina and from Key West.* This is the *Lupa maculata* of Say, and appears to be the same as Lamarck's *Portunus cribrarius*, and as the latter specific name is the prior one, I have retained it.

Lupa spinimana, Leach—Boston Cabinet, and also in the American Museum, New-York.

Lupa rubra, M. Edw.—Philadelphia and Charleston Cabinets. My specimens are from *Key West*, by Dr. Wurdemann.

Lupa forceps, Leach—New-York Cabinet.

Thalamita pulchra, Randall—Philadelphia Cabinet, appears to be very near *T. erythro-dactyla*—M. Edw.

Podophthalmus vigil, Leach—Philadelphia and Charleston Cabinets. From the Sandwich Islands.

3 FAMILY CATOMETOPA.

3. TRIBE THELPHEUSIANA.

THELPHEUSA FLUVIATILIS, LATR.—New-York and Charleston Cabinets. From the Mediterranean.

THELPHEUSA INDICA, LATR.—Boston Cabinet,

POTAMIA DENTATA, LATR.—Boston and Philadelphia Cabinets. The *Boscia dentata* of M. EDWARDS,—*Potamia* is the prior name.

POTAMIA LATIFRONS, RANDALL—Philadelphia Cabinet. Distinct from *P. dentata*, LATR.

TRICHODACTYLUS QUADRATUS, M. EDW.—Boston Cabinet.

2. TRIBE GECARCINIANA.

ORTHOSTOMA DENTATA, RANDALL—Philadelphia Cabinet. A distinct genus, but I do not feel confident that it has its proper place in the systematic arrangement.

UCA UNA, LATR.—New-York and Philadelphia Cabinets.

CARDISOMA CARNIFEX, LATR.—Philadelphia Cabinet.

CARDISOMA GUANHUMI, LATR.—Boston, New-York, Philadelphia, and Charleston Cabinets. My specimens are from *Key West*, *Fla.*

GECARCINUS RURICOLA, LATR.—Boston, New-York, Philadelphia and Charleston Cabinets.

GECARCINUS LATERALIS, M. EDW.—Boston and Philadelphia Cabinets.

3. TRIBE PINNOTHERIANA.

PINNOTHERES OSTREUM, SAY—New-York and Charleston Cabinets. From the *Coast of New-York* and *Coast of South-Carolina*, most probably its range is from Cape Cod to Key West.

PINNOTHERES MACULATUS, SAY—New-York and Charleston Cabinets. From *Coast of New-York* and *Coast of South-Carolina.* Pinnotheres is masculine, but SAY, misled perhaps by the termination in the European species *P. pisum*, everywhere regards it as neuter. The accent is on the penult.

PINNOTHERES BYSSOMIÆ, SAY—Philadelphia Cabinet; SAY's original specimen and label.

4. TRIBE OCYPODIANA.

OCYPODE ARENARIA, SAY—Boston, Philadelphia, and Charleston Cabinets. My specimens are from the *Coast of South-Carolina* and from *Key West.*

OCYPODE RHOMBEA, M. EDW.—Boston Cabinet.

OCYPODE FABRICIUS, M. EDW.—New-York Cabinet.

GELASIMUS PLATYDACTYLUS, M. EDW.—Philadelphia and Charleston Cabinets.

GELASIMUS VOCANS, M. EDW.—Boston, New-York, Philadelphia, and Charleston Cabinets. *Coast of Atlantic States*, from Massachusetts to Key West. I do not know whether those inhabiting our coast, those inhabiting the West Indies, and those proceeding from Brazil, form one species, as M. EDWARDS appears to regard them, or as several, as others appear to have arranged them, not having had the means of effecting a comparison.

5. TRIBE GONOPLACIANA.

PSEUDORHOMBILA QUADRIDENTATA, M. EDW.—The only specimen of this crab that I have seen is in the American Museum in New-York —a fine specimen.

GONOPLAX RHOMBOIDES, DESM.—Boston and Charleston Cabinets.

MACROPHTHALMUS COMPRESSIPES, RANDALL.—Philadelphia Cabinet. Distinct from the other species of the genus. *M. podolphthalmus* of the voyage of the Bonite is a synonyme of this species.

6. TRIBE GRAPSIANA.

SESARMA AFRICANA, M. EDW.—Boston Cabinet.

SESARMA RECTA, RANDALL—Philadelphia Cabinet.

SESARMA RETICULATA, SAY—Boston, New-York, Philadelphia, and Charleston Cabinets. Those in the Philadelphia Cabinet were said to have been found on the *Coast of New-Jersey.* I have obtained them on the *Coast of South-Carolina*, and I have specimens *from Key West.* In South-Carolina they are by no means as abundant as the next species.

SESARMA CINEREA, SAY—Boston, New-York, Philadelphia, and Charleston Cabinets. This is the *Grapsus cinereus* of Bosc. Abundant *in Charleston Harbour*, and exists also *at Key West.* MILNE

Edwards, (op. cit, tome, ii. p. 75, note) confounds this species, and the preceding, and so does DeKay, (New-York Fauna, Crustacea, p. 15,) but they are quite distinct and readily distinguished; *S. reticulata*, has a thicker body than *S. cinerea*, and is every way more robust; the latter has no tooth behind the exterior angle of the orbit, the former, a small but very perceptible one, sometimes becoming quite prominent, and also a granulated line on the crest of the hand, which is wanting in the latter. This enables me to say that Dr. DeKay, while writing his description of *S. cinerea*, had *S. reticulata* before him, and probably the want of specimens of both species, prevented him from seizing the distinctive characters.

Sesarma Pisonii, M. Edw.—Boston, New-York, and Charleston Cabinets. My specimen was sent me *from Key West*, by S. R. Mallory, Esq.

Grapsus cruentatus, Latr.—Boston, Philadelphia, and Charleston Cabinets—also, in the American Museum, New-York. The specimens in my Cabinet are *from Key West*. Those in the Philadelphia Cabinet are said to be from Surinam, and being regarded by Dr. Randall as new, were described by him as *G. longipes*. (Jour. Acad. Nat. Sci. vol. viii. p. 125.) In my note on this species, appended to the Catalogue sent to the Academy, I see, that in seeking for a reason for the error of Dr. R., I have committed the strange mistake of regarding Surinam as not a locality for this species; as it is an inhabitant of the West Indies and Brazil, I can perceive no reason why it should not inhabit Surinam.

Grapsus lividus, M. Edw.—Boston and New-York Cabinets. The specimen in the Boston Cabinet was brought *from Florida*, by Mr. Bartlett.

Grapsus pictus, Latr.—Boston, New-York, Philadelphia and Charleston Cabinets. My specimen is *from Key West*.

Grapsus rudis, M. Edw.—Philadelphia Cabinet. From the Sandwich Islands. This is the same as *G. hirtus* of Randall, and M. Edwards' name is the prior one. With him I regard *G. rudis* as distinct from *G. pictus*, though it differs only in the following particulars: The shell is clothed with numerous but distinct transverse lines of hairs; the front is not so perpendicularly turned down, the four lobes of the front are more tuberculous, and the limbs are smaller when compared with the body.

Grapsus varius, Latr.—Boston Cabinet.

* Grapsus transversus.—Boston and Charleston Cabinets. This

species was brought me *from Key West*, by Dr. WURDEMANN, in 1845, and lately by Prof. W. H. HARVEY, from the same place, where it appears to be common. Those in the Boston Cabinet were, I believe, also brought from Florida by Mr. BARTLETT. Shell broader than usual in the genus, and narrowed posteriorly, the length being only three-fourths the breadth, with a well marked tooth on each side, behind that which forms the external orbitar angle, marked with many transverse slightly elevated lines of fine granules, of a darker color than the rest of the shell, producing the appearing of fine plications; several of those lines converge to the lateral tooth on each side, they are most distinct on the anterior portion of the shell, and become obsolete on the hinder part; front, a little more than half the breadth of the shell sloping gently downwards and forwards, edge slightly sinuous as if bilobate, marked above with the four elevations peculiar to the genus, moderately developed; third segment of the exterior jaw-feet dilated and rounded on the outer side; hands smooth polished, with a corrugated area on the crest, and an elevated line on the outside near the lower edge, running to the tip of the finger. By these characters, it will be seen that it belongs to M. EDWARD's second division of the genus, or RANDALL's genus, *Pachygrapsus*, if that be adopted.

PACHYGRAPSUS CRASSIPES, RANDALL—Philadelphia Cabinet.

PACHYGRAPSUS PARALLELUS, RANDALL—Philadelphia and Charleston Cabinets. These appear to be distinct from the described species of the genus *Grapsus*.

NAUTILOGRAPSUS MINUTUS, M. EDW.—Boston, New-York, Philadelphia and Charleston Cabinets. This is the *Grapsus cinereus* of SAY, described in Jour. Acad. Nat. Sci. vol. i., p. 99, supposing it to be the *Grapsus cinereus* of Bosc.; on p. 449, the name is changed by him to *G. pelagicus*, on finding the true *G. cinereus* of Bosc, the *Sesarma cinerea* of late writers. This species has never been found on our coast, as far as I am aware, but it is not uncommon in the *Gulf Stream*, off the coast, *from the Gulf of Mexico to New-York*, clinging to marine animals and vegetables.

PLAGUSIA CLAVIMANA, LATR.—New-York and Philadelphia Cabinets. In the Philadelphia Cabinet there are young individuals brought from Santa Cruz, by Dr. R. E. GRIFFITH, and one individual said to be from the Pacific; no perceptible difference existed between those from different localities.

PLAGUSIA SQUAMOSA, LAMK.—Boston, New-York, Philadelphia and Charleston Cabinets. My specimens are *from Key West*, brought by

Dr. Wurdemann, and *from Charleston Harbor*, obtained by Dr. Edmund Ravenel on the Breakwater on Sullivan's Island, three or four years since. It seems to have made its appearance on our coast, or at least on that of Sullivan's Island, only since the construction of the Breakwater, as it never presented itself before to Dr. Ravenel, during a residence of more than twenty successive summers. This is the *P. depressus* of Say, but not the *P. depressa* of other authors. I have never seen specimens of the *P. squamosa* of the Red Sea and Indian Ocean, to ascertain by comparison how far it differs from that species, but it agrees so completely with the descriptions and figures of it that I will not decide to separate it. If distinguished from that, it will take the name *P. Sayi*, assigned to it by Dr. DeKay.

4. FAMILY OXYSTOMA.

3. TRIBE CALAPPIANA.

Calappa granulata, Fabr.—Boston and New-York Cabinets.

Calappa marmorata, Fabr.—Boston, Philadelphia and Charleston Cabinets; also in the American Museum, New-York. The specimens in my Cabinet are *from Key West*, where they are called Box Crabs ,as I was informed by Dr. Wurdemann, who brought them. I have also a specimen, said to have been taken by fishermen *off Charleston Harbor.*

Calappa lophos, Fabr.—Boston Cabinet.

Calappa cristata, Fabr—Boston and Philadelphia Cabinets.

Calappa tuberculata, Fabr.—Philadelphia and Charleston Cabinets.

Platymera Gaudichaudii, M. Edw.—Boston and New-York Cabinets.

Orythia mamillaris, Fabr.—The only example of this species that I have seen is a very good specimen in the American Museum, at New-York.

Hepatus fasciatus, Latr.—Boston, New-York, Philadelphia and Charleston Cabinets.

* Hepatus decorus—Charleston Cabinet. I have for several years past, separated, under the above name, this species from the preceding, with which it undoubtedly has been confounded by carcinologists, except Herbst. It is *common in Charleston Harbour*, and at times its exuviæ are abundant on the beaches. I have specimens of all sizes, from half an inch in length up to two inches, exhibiting the series of changes it

undergoes as it advances in age. The two species, *H. fasciatus* and *H. decorus*, resemble each other closely in the size and form of the body and the dentation of its latero-anterior edges, in the form and armature of the carpus and hand, and in the form and colored markings of the four hinder pair of feet. They differ in the markings of the shell. In the *H. fasciatus*, (of which I have only seen adult individuals,) the spots, which are deep red on a pale ground, are small and distributed in transverse bands slightly convex forward, or, in some specimens, are broken up into smaller spots and dots, and scattered irregularly over the whole surface. In *H. decorus*, the spots, in adult individuals, are large, of a light red color, bordered with a deeper tint of red, and symmetrically disposed on the two sides of the shell; this longer diameter, when not circular, being frequently in the direction of the length of the shell, In young individuals, or at least smaller ones, the spots still retain their large size compared with that of the shell, the same character of coloration, that is, a pale disk, with darker border, but their longer diameter is transverse, and they are so arranged as to run in transverse curved bands, with the convexity forwards, and occasionally their extremities run one into another, so that they form a continuous band from one side of the shell to the other; the transition from the latter of these forms to the former can be easily traced when a number of shells of different sizes are compared. In *H. decorus* there are on each of the branchial regions on the two sides two transverse *lines* of granules, separated by a wide space, the anterior one being the longer; these are most distinct in small specimens, and become less so in the larger, and not unfrequently are entirely effaced. In *H. fasciatus*, in the same positions, there are *groups* or *patches* of granules irregularly distributed and well-marked in the large individuals; Desmarest's figure (Consid. Gen. Crust., pl. 9, fig. 2,) exhibits the position of these groups and the distribution of the granules. In *H. fasciatus* there is a granulated ridge running from the external angle of the eye outwardly to the denticulated edge of the shell, quite distinct in the older individuals. In the *H. decorus* this ridge is equally distinct in young individuals before the change in the markings of the shell has taken place; afterwards it becomes fainter, and in some full-sized specimens no trace of it is left. These characteristics indicate that there are two distinct species, and that *H. fasciatus* is the lower form of the two, since it retains in adult age the characters presented by the other only in its early stages. It is proper to add that I have never seen an individual of *H. fasciatus* on our coast, where *H. decorus* is common. This is undoubtedly the *Can-*

cer decorus of Herbst—Naturgeschichte der Krabben und Krebsen, Band ii, s. 154, Tab. 37, fig. 6—and I am glad to be able to establish one of the species of that industrious collector, long overlooked by carcinologists; Milne Edwards makes no reference to it. The *Platycarcinus decorus*, indicated on page 29 of the Bulletin of Proceedings of the Academy of Natural Sciences of Philadelphia, by the committee on my catalogue of the Crustacea in their Cabinet, is, I have no doubt, the *Hepatus decorus.* Herbst says that unfortunately he had only a shell of this crab, and that its fatherland is unknown.

Hepatus Chiliensis, M. Edw.—New-York Cabinet.

2. TRIBE LEUCOSIANA.

Leucosia Urania, Leach—Boston Cabinet.

Leucosia craniolaris, Leach—New-York Cabinet.

Ilia nucleus, Leach—Boston, New-York and Charleston Cabinets.

* Ilia armata—New-York Cabinet. This new and well-marked species I found in the Cabinet of the Lyceum of Natural History of New-York, and presented a description to be published in their proceedings, which I will here transcribe. Body sub-globose, sub-circular in outline, with posterior edge lamellar, straight, projecting with the angles slightly rounded, surmounted by a single large sub-lamellar, acutely-pointed dentiform process, slightly curved upwards at top; surface of shell granulate granules, most distinct on anterior and lateral parts, and on upper surface of the tooth or process above mentioned; anterior feet moderately long, nearly twice the length of body, slender, third segment tapering from the articulation near the body to the other, granulate granules largest near the body and on the upper surface, carpus short, hands long, slender, tapering to articulation of finger, finger and thumb filiform, the former articulated in a direction at right angles to that of the carpus and hand; legs of four last pair slender, with long and slender tarsi; abdomen having the fourth, fifth and sixth segments in one, in the only individual seen, a female; length of body one inch; country unknown.

Guaia punctata, M. Edw.—Philadelphia and Charleston Cabinets; also in the American Museum in New-York. My specimens are *from Charleston Harbour;* I have found it also abundant on the *coast of Georgia.* This crab has been frequently confounded with *Ilia punctata* of Milne Edwards, the *Leucosia punctata* of previous writers, for want of attention to the slender fingers and to the peculiar contorted form of the hands in the genus *Ilia*. The *Leucosia punctata* mentioned by SAY, (J. A. N. S., vol. 1, page 458,) as very common on the Southern coasts, and the *Ilia punctata* of DEKAY, (op. cit., p. 17,) are undoubtedly *Guaia punctata*, and must rank as its synonymes. The country of the true *Ilia punctata* of M. EDW. appears to be unknown. I have not been able to obtain access to a copy of BROWN'S Jamaica, to examine his descriptions and figures of *Ilia punctata* and of *Guaia punctata*, referred to by M. EDWARDS.

† GUAIA ORNATA—Philadelphia Cabinet. This is a very distinct and pretty species of the genus *Guaia*, from Upper California, described by Dr. RANDALL as *Ilia ornata*, (J. A. N. S., vol. viii, p. 129,) but really belongs to the genus to which I have referred it. Probably, for want of specimens at hand really belonging to *Ilia*, Dr. R. overlooked its peculiar characters.

3. TRIBE CORYSTIANA.

ATELECYCLUS CRUENTATUS, DESM.—New-York Cabinet.
ATELECYCLUS CHILENSIS, M EDW.—New-York Cabinet.

4. TRIBE DORIPPIANA.

DORIPPE LANATA, LAMK.—Boston Cabinet.
DORIPPE QUADRIDENTATA, LATR.—New-York Cabinet.
DORIPPE SIMA, M. EDW.—New-York and Charleston Cabinets.
CYMOPOLIA CARONII, ROUX—Boston and Charleston Cabinets.

B. ANOMOURA.

1. FAMILY APTERURA.

1. TRIBE DROMIANA.

DROMIA VULGARIS, M. EDW.—Boston and New-York Cabinets.

DROMIA LATOR, M. EDW.—Boston, Philadelphia and Charleston Cabinets. My specimen is *from Key West.*

2. TRIBE HOMOLIANA.

HOMOLA SPINIFRONS, LEACH—New-York Cabinet.

Lithodes artica, Latr.—Boston Cabinet. The specimen was obtained on the *coast of Massachusetts.*

3. TRIBE RANINIANA.

Ranina dentata, Latr.—Philadelphia Cabinet. Two fine specimens. Dimensions of largest: shell 4 1-2 inches long and as many broad, shell with abdomen extended 7 inches; breadth of hand, finger excluded, 1 1-4 inch, finger included, 2 1-2 inches; length of thumb or moveable finger, 1 1-2 inch; length of one of the first pair of feet, thumb extended, is 7 inches.

Ranilia muricata, M. Edw.—Boston and Charleston Cabinets. The specimens were brought *from Florida* by Mr. Bartlett. M. Edwards' description was drawn from a single specimen in bad condition in the Cabinet of the Museum of Natural History at Paris, and no figure of it has been given. I have a colored drawing of it made two or three years since, and hope to publish it with a description in the course of the year, in the Boston Journal of Natural History.

2. FAMILY PTERYGURA.

1. TRIBE HIPPIANA.

Albunea symnista, Fabr.—Boston, Philadelphia and Charleston Cabinets. My specimens are only fragments of the exuviæ of this species, found by me on the beach at Sullivan's Island, at entrance of *Charleston Harbour.* I cannot decide without specimens of the foreign species for comparison, whether this is new or not; the short description of M. Edwards and others, apply to it in nearly all particulars.

Albunea scutellata, Desm.—Charleston Cabinet. Fragments from *Charleston Harbour.* The preceding remarks apply here also, but it is to be observed the country of this species is not given by Desmaresm and Milne Edwards. I believe this is the first notice that has been given of the existence of these two species on this continent.

Blepharipoda occidentalis, Randall—Philadelphia Cabinet. A well marked genus; the individual is a female. abdomen with appendages, first pair of feet cheliform; hence near Albunea, but quite distinct.

Remipes testudinarius, Latr.—Boston Cabinet.

Hippa emerita, Latr.—New-York and Charleston Cabinets. The specimens in these two Cabinets are from the coast of Brazil, and enable me to make a comparison with our own species.

Hippa talpoidea, Say—Boston, N. York, Philadelphia and Charleston Cabinets. Since receiving the Brazilian specimens, I have not had an opportunity of again examining individuals *from the coast of Massachusetts and New-York*, but have little doubt that they agree with those in my Cabinet *from Charleston Harbour, and from Key West.* On comparing the Brazilian and Carolina specimens, the difference between them is obvious, though perhaps not easily conveyed in words, being one of degree, no absolute character presenting itself for distinguishing them. The chief points of difference are in the rostrum, form and size of the terminal segment of the first pair of feet, and of the third segment of the exterior jaw feet, and in the degree of serrature of the latero-anterior edge of the shell. In the *H. emerita*, the rostrum is acute and nearly as prominent as the adjacent teeth of the rostral sinus, in the *H. talpoidea*, it is rounded at tip, less prominent, sometimes almost obsolete in the first species, the terminal segment of the first pair of feet is oval or ovate, rounded at tip ; in the second, narrower, more lanceolate, sometimes acute at tip. A similar difference exists in the third segment of the exterior jaw-feet, which is broad, and dilated posteriously in *H. emerita*, and is narrow and elongated in *H. talpoidea ;* in the former, the serrature of the latero-anterior edges is minute, but very distinct ; in the latter, it is indistinct or obsolete; also the spines on various parts are more robust and strongly marked in *H. emerita*, than in *H. talpoidea*, as the three spines, on the large basilar segment of the external antennæ, the spine on the fourth segment of first pair of feet, and the prolongation of the fifth. The Brazilian specimens, three in number, all females, with eggs, presented a complete agreement in their characters, as did also three out of four Carolina specimens, all four also females ; the fourth, was more marked than the others, rostrum scarcely visible, last segment of the first pair of feet narrow and acutely pointed ; third segment of jaw-feet, narrow, and tapering anteriorly.

2. TRIBE PAGURIANA.

Pagurus Bernhardus, Latr.—Boston and Philadelphia Cabinets. This species has been found on the *coast of the eastern States*, and the specimens, I believe, are deposited in the Cabinet of the Boston Soc. Nat. Hist.

LIBRARY
DIVISION OF CRUSTACEA

Pagarus callidus, Roux—Boston Cabinet.

Pagurus punctulatus, Olivier—New-York and Philadelphia Cabinets.

Pagurus granulatus, Olivier—Boston, Philadelphia and Charleston Cabinets. My specimens are *from Key West.*

Pagurus aniculus, Olivier—Philadelphia Cabinet.

Pagurus vittatus, Bosc.—Charleston Cabinet. This species is very abundant in *Charleston Harbour.* I have it also *from Key West.*

Pagurus pollicaris, Say—Boston, New-York, Philadelphia and Charleston Cabinets. Enumerated among the Invertebrata of *Massachusetts* by Dr. Gould; *coast of New-York*, Dr. Dekay. My specimens are *from Charleston Harbour*, and I have them also *from Key West.*

Pagurus longicarpus, Say—Boston, New-York and Charleston Cabinets. From *coast of Massachusetts*, Dr. Gould; *coast of New-York*, Dr. Dekay; rather common in *Charleston Harbour.*

Pagurus carinatus, Randall—Philadelphia Cabinet.

Pagurus symmetricus, Randall—Philadelphia Cabinet.

Pagurus decorus, Randall—Philadelphia and Boston Cabinets.

Pagurus lævimanus, Randall—Philadelphia Cabinet.

Pagurus latens, Randall—Philadelphia Cabinet.

* Pagurus tricolor—Charleston Cabinet. Brought *from Key West* by Dr. Wurdemann. Opthalmic ring without rostriforme process, ocular peduncles equal in length to the basilar portion of the external antennæ, and longer than their spiniform process, blue, cornea black, with white dots; rostrum reduced to a mere acute tooth, scarcely perceptible; anterior feet deep brown, spotted with white, tips of fingers black, carpus granulated and heiry; two following pairs of feet sky blue, annulated with orange at the upper part of each segment, just beneath articulation, tarsi yellow with brown spots, and an orange ring just beneath the articulation; external antennæ orange, first segment of internal antennæ blue, second blue beneath, orange above, tuft at the extremity orange; shell, blue, anterior portion subquadrilateral with four black spots; length of body and abdomen one inch.

Cenobita Diogenes, M. Edw.—Boston, Philadelphia and Charleston Cabinets. The specimens of the Charleston Cabinet are *from Key West.*

3. TRIBE PORCELLANIANA.

Porcellana cinctipes, Randall—Philadelphia Cabinet.

Porcellana platycheles, Lamk.—Charleston Cabinet.

Porcellana sociata, Say—Philadelphia and Charleston Cabinets. In the Philadelphia Cabinet is Say's original specimen, collected on the coast of Georgia, without the label however. I have specimens *from the coast of S. Carolina* and *from Key West.* I have not been able to identify Milne Edwards' *P. pilosa* with this species nor with any of the following; he says it is from the environs of "Charlestown," in the United States. Nor have I been more successful in identifying Leach's *Pisidia Sayana*, (Desm. Consid. Gen. Crust., p. 199,) nor the *Porcellana galathina* of Bosc, either as described by himself with figure, (Hist. Nat. Crust. tom 1, p. 299, 2d edit.,) or by Desmarest, (op. cit. p. 199.)

* Porcellana ocellata—Charleston Cabinet. *Coast of South-Carolina.* Front trifid, middle lobe most prominent, with central depression, in some individuals sub-acute, with sub-dentate edges, outer angle of the eye acute, but without spine, shell with a distinct border running backwards two-thirds its length; carpus short, with projecting lobe at base of inner edge, this edge without spines, outer edge with a slightly raised border, with a single spine at articulation with hand; hand sub-triangular, lower edge ciliate; shell smooth, without spines, with whitish spots, when recent, on a reddish ground, which is frequently deeper around the spots; posterior part of shell and abdomen with reddish longitudinal bands, hand and carpus of large claw marked like shell, feet with transverse reddish bands, in which the ocelli may be frequently perceived. All these markings are less distinct in the dry specimen.

* Porcellana armata—Boston and Charleston Cabinets. *From Florida.* Front not trifid, middle portion prominent, lateral portions rounded; eyes prominent, outer angle of orbit obtuse, a little distance behind it, on the edge of the shell, an acute spine, from which an indistinct border runs back, carpus twice as long as broad, anterior edge with three acute teeth, posterior edge bordered with four or five small spines, hand sub-triangular, lower edge serrate, with small spines; third segment of the three following feet, with two or three spines on the upper edge, one at the anterior termination of the lower edge; shell brownish red in the dried specimen, rugulose with small transverse piliferous lines, these are apparent also on the feet, and more distinct on the carpus and hand where the lines are granulate.

* Porcellata sexspinosa—Charleston Cabinet. Collected at *Key*

West by Dr. Wurdemann. Front not trifid, middle portion prominent, lateral portions rounded, very slightly prominent; on each side of the front, just over the eye, there is a spine forming, as it were the inner angle of the orbit, the outer angle of the orbit is also formed by a spine, short, but very distinct; behind which, at a little distance on the shell, there is another, from a marked ridge runs backward, forming a border to the shell, but before reaching the posterior edge, turns upward and forms one of the transverse lines on the back; basal joint of the external antennæ with a stout spine; carpus moderately long, with five broad teeth on the anterior edge, the last forming the angle at the articulation with the hand, outer edge with five or six small spines, hand sub-triangular, serrate and slightly ciliate on lower edge; shell covered with long transverse, distinct, piliferous lines, giving it a well marked rugous appearance, lines generally extending one-third the breadth of the shell; carpus and hand rugous in like manner on both surfaces, lines running entirely across the carpus; third segment of the legs clothed with similar rugæ, on the upper edge spinous. This I suppose to be the *Porcellana* observed by Say, and considered by him *P. galathina*, (J. A. N. S., vol. 1, p. 458.)

* Porcellana magnifica—Charleston Cabinet. Brought from *Vera Cruz* by Dr. Cleveland, of Charleston. Front resembles that of the two preceding, not trifid, triangular, with a central linear depression; shell with length and breadth nearly equal, as in all the preceding, smooth, polished, punctate, with traces of rugæ near the lateral edges, which are marked with a moderately distinct line, no spines in any part, anterior feet unequal in size, carpus long, about three times as long as broad, and as long as the shell, anterior edge with three distant teeth, posterior marked with a few denticulations near the articulation with hand; hand broad, flat, thumb included sub-triangular, but the lower edge, or anterior edge when folded in repose, is regularly arched from the articulation round to the tip of the finger; palmar portion as long as the carpus; finger and thumb with their opposing edges straight, without teeth, slightly hooked at tip, surface of carpus and hand, shining, but roughened with a multitude of exceedingly minute granulations on the upper surface, on the lower, they are few and scattered, and the surface comparatively smooth and polished; color of shell and anterior feet pale red in dry specimen.

* Porcellana macrocheles—Charleston Cabinet. Found on the

coast of South-Carolina by Dr. T. L. Burden, of Charleston. Totally different in appearance from all the preceding. Body thick, shell transverse, length to breadth as three to four, convex longitudinally, front very slightly prominent, anterior edge nearly straight, eyes small, not prominent; basal segment of external antennæ massive, completely filling up the groove in the shell in which it is placed, and bearing only on its outer angle the moveable peduncle, which is thus entirely separated from the eye; the groove is not prolonged backwards under the lateral portion of the shell as usual, but that course is marked by a fissure; anterior feet unequal, third segment subcubical, rounded posteriorly, with a projecting lamellar lobe anteriorly; carpus as long as the shell, thick, subcylindrical, with anterior edge curved, lamellar projecting, without teeth or spines; the larger hand, long, thick, subcylindrical, anterior edge for three-fifths of its extent straight, ciliate, thumb falcate, acute, finger straight-hooked at tip, with a large tooth on the middle of the trenchant edge; smaller hand more slender and compressed; larger hand with the finger, is twice the length of shell; color pale yellowish white in dry specimen.

Monolepis inermis, Say—Charleston Cabinet. Obtained from the stomach of a fish (*Thynnus vulgaris*, Cuv.?) taken at sea, *off the Atlantic coast*, on a voyage from New-York to Charleston, in 1846.

Monolepis spinitarsus, Say—Philadelphia Cabinet. The specimen described by Say, with his label, *from the coast of South-Carolina.*

C. MACROURA.

1. FAMILY LORICATA.

1. TRIBE GALATHEANA.

Galathea strigosa, Desm.—New-York Cabinet.

Galathea squamifera, Leach—Boston and Charleston Cabinets.

2. TRIBE SCYLLARIANA.

Scyllarus arctus, Fabr.—Boston, New York, Philadelphia and Charleston Cabinets.

Scyllarus latus, Latr.—New-York Cabinet.

SCYLLARUS SQUAMMOSUS, M. EDW.—Philadelphia Cabinet.

SCYLLARUS EQUINOXIALIS, FABR.—New-York, Philadelphia and Charleston Cabinets. My specimen is *from Key West*, sent by S. R. MALLORY, Esq.

THENUS ORIENTALIS, LEACH—Boston, New-York and Charleston Cabinets.

IBACUS ANTARCTICUS, LEACH—Philadelphia Cabinet, from Sandwich Islands, I believe.

IBACUS PARRÆ, M. EDW.—Philadelphia Cabinet. I insert under this name an individual in the Philadelphia Cabinet marked as "brought from Santa Cruz by R. E. GRIFFITH," but it agreed in character with the preceding species and with M. EDWARDS' description of it, the spine being *present* on the fifth pair of feet, the *absence* of which makes his *I. Parræ* a native of the Antilles. Are the two species really one? or is a closer comparison yet required of the analogous species of the Gulf of Mexico and of the Pacific?

*IBACHUS NOVEMDENTATUS—New-York Cabinet. I will, for the present, indicate under this name, an individual in the above mentioned Cabinet, which resembles *I. Peronii*, and I believe I so labelled it provisionally; but it is distinguished by the following characters: It has nine teeth on the lateral edges of the shell, instead of seven, that is, eight behind the lateral fissure of the shell, instead of six, as in *I. Peronii*, and one before the fissure, as in that species, forming the anterior angle of the shell; the last segment of the exterior antennæ have on their anterior edge six or seven teeth, instead of three or four, as in *I. Peronii;* of these six or seven, three are broad and prominent, the others small and intermediate; and, lastly, the fourth segment of the external jaw-feet is traversed by seven or eight deep fissures, not mentioned in M. EDWARDS' description of *I. Peronii*, but may exist, for it is proper to add that I have not seen a specimen really belonging to that species. DESMAREST, I find, mentions these fissures or deep grooves in his character of the genus, which, however, only includes *I. Peronii.*

3. TRIBE PALINURIANA.

PALINURUS VULGARIS, LATR.—Boston Cabinet.

PALINURUS AMERICANUS, M. EDW.—Boston, Philadelphia and Charleston Cabinets; also in American Museum, New-York. I have specimens *from Key West.*

Palinurus interruptus, Randall—Philadelphia Cabinet.

2. FAMILY FOSSORES.

Callianassa major, Say—New-York and Charleston Cabinets. My specimens are *from Coast of South-Carolina* and *Charleston Harbour.* With regard to Say's description, it must be observed in applying, that he erroneously supposes the hand to be abnormally constituted and to be two-jointed; what he calls first joint of hand is really the carpus; his carpus is the third joint or segment, and so on. The crustacean described by Dr. DeKay as *Gonodactylus setimanus* (op. cit., p. 34,) belongs to this genus, as can be seen from the description and figure, and I regard it as belonging to this species. Most probably the individual he obtained had lost the large anterior foot so striking in this genus, and the error was thus induced. But I have examined the specimen preserved in the New-York Cabinet with his label, and it does not belong to the *Stomapoda*, as the branchiæ are in the position usual in *Decapoda*, under the shell, and it is in fact a *Callianassa.* The necessity for this and other corrections I communicated to Dr. DeKay, with the wish that he would himself make them public; he communicated them to the Lyceum of Natural History of New-York, but I cannot learn that they have been published. With the same motive I made a similar communication to Dr. Randall, but his distance from the specimens, and other engagements, induced him to entrust the office of correcting these errors to me. As Dr. Randall has made this request, and as Dr. DeKay's corrections do not appear to have been published, I have inserted in this paper the corrections requisite in both cases, influenced by that friendly consideration for both gentlemen which a consciousness of one's own liability to error should ever induce for the errors of others.

* Callianassa grandimana—Charleston Cabinet. This species was brought *from Key West* by Dr. F. Wurdemann, and is easily distinguished from *C. major* by its large anterior claw or foot. The second segment is slender and narrow near its articulation with the first, and is dilated and incurved as it advances, with distant granules on its lower edge; the third segment is broader, dilated so as to form below a sharp serrated edge, which is truncated as it approaches the posterior articulation, inner surface of the segment is nearly plane, on the middle of the outer is a longitudinal obtuse ridge; the carpus

is united with the preceding segment by a small articulating surface near its upper edge, somewhat inflated externally, the breadth, or rather the depth, nearly twice as great as the length, the posterior lower angle rounded, forming an edge without any trace of serrature; the hand broader, or rather deeper, than the carpus, and its length, exclusive of the finger, is nearly double that of the carpus, inflated on the internal surface, and more so on the external, lower edge ciliate, and with a few small distant serrations; whole surface of hand, as well as of carpus, smooth and polished.

Gebia affinis, Say—Charleston Cabinet. *From Charleston Harbour.*

3. FAMILY ASTACIDÆ.

Astacus fluviatilis, Fabr.—Philadelphia Cabinet.

Astacus Bartonii, Fabr.—Boston, New-York, Philadelphia and Charleston Cabinets. Inhabits *Massachusetts*, Dr. Gould; *New-York*, Dr. DeKay; I have it *from New-Jersey*, from the upper part of *South-Carolina*, and *from Alabama.*

Astacus affinis, Say—Boston, New-York, Philadelphia and Charleston Cabinets. My specimens are *from Florida.*

Astacus Blandingii, Harlan—New-York, Philadelphia and Charleston Cabinets. My specimens are from the low country of *South-Carolina.*

Astacus pellucidus, Tellkampf—Boston and Charleston Cabinets. From the *Mammoth Cave, Kentucky.*

Homarus Americanus, M. Edw.—Boston and New-York Cabinets. From the coast of the *Northern States.*

Nephrops occidentalis, Randall—Philadelphia Cabinet. From west coast of North-America.

4. FAMILY PALEMONIDÆ.

1. TRIBE CRANGONIANA.

Crangon septemspinosus, Say—Boston, New-York and Charleston Cabinets. From the *coast of the Northern States* I think Say must be mistaken when he says (op. cit., p. 26,) that this species is found as far south as East Florida. I have never met with it at the South, and can scarcely believe that I have overlooked it.

Crangon cataphractus, M. Edw.—Boston Cabinet.

2. TRIBE ALPHEANA.

Atyoidea bisulcata, Rand.—Philadelphia Cabinet. From Sandwich Islands.

Alpheus dispar, Rand.—Philadelphia Cabinet. From Manilla. Hardly distinct from *A. brevirostris*, M. Edw.

Alpheus lævis, Rand.—Philadelphia Cabinet. From Sandwich Islands.

Alpheus heterochelis, Say—Charleston Cabinet. *From Charleston Harbour* and *from Key West.* I am strongly induced to believe that the *A. armillatus* of M. Edwards is the same as this species; the "circular depression around the large hand," mentioned by him, among its characters, corresponds exactly with the "abrupt constriction near the fingers" in Say's description.

Alpheus minus, Say—Charleston Cabinet.—*From Charleston Harbour* and *from Key West.* Say puts the specific name in the neuter gender.

* Alpheus formosus—Charleston Cabinet. Brought *from Key West*, with the two preceding, by Dr. Wurdemann. Size of *A. heterochelis*, but readily distinguished from it by the rostrum and hand; rostrum large and well-formed, arising a little distance behind the edge of the shell by a broad base, and running forward to an acute point, projecting beyond the anterior edge of the shell, which it overhangs; a small spine on the vaulted part of the shell over each eye; hand smooth, moderately compressed, slightly contorted, without constriction or depression on the hand, and not presenting the deformed appearance of the hand in *A. heterochelis;* a single spine on the hand on the inside at the articulation of the thumb; *A. heterochelis* has no spines over the eyes; these are present in *A. minus*, but the rostrum which springs from the edge of the shell is scarcely larger than they, so that the anterior edge appears tridentate.

* Pontonia domestica—Charleston Cabinet. Found on the *coast of South-Carolina*, inhabiting the living shells of *Pinna muricata* and *P. seminuda*, sometimes in company with *Pinnotheres maculatus.* Rostrum broad, depressed, projecting, acute, body stout, smooth, with a small spine on the outside of the insertion of the external antennæ; hand, excluding the finger, as long as the shell, inflated, but only about half the diameter of the body; finger broad, with two teeth, thumb slender, arched, with a single tooth fitting between the two on the finger when closed. This, I believe, is the first time this genus has been indicated as belonging to America.

3. TRIBE PALEMONIANA.

HIPPOLYTE MARMORATA, M. EDW.—Philadelphia Cabinet, Sandwich Islands.

HIPPOLYTE ACULEATA, M. EDW.—Charleston Cabinet. Taken by me from the stomach of a Cod or Haddock, on the *beach, at Lynn, Mass.*, brought in by fishermen.

HIPPOLYTE GRACILIPES, RAND.—Philadelphia Cabinet. The specimen so labelled was in bad condition, but certainly belonged to genus *Palemon.* Perhaps some interchange of labels had taken place.

*HIPPOLYTE WURDEMANNI—Charleston Cabinet. Brought *from Key West*, in 1845, by Dr. F. WURDEMANN. Found last year in *Charleston Harbour*, by JAMES JOHNSON, Esq., of Charleston. Rostrum springing from the middle of the shell, and running forwards to the base of the last segment of the peduncle of the internal antennæ, and to about two-thirds the length of the lamellar appendage of the external antennæ, with four teeth on its upper edge, (not including the spine at the tip,) and a fifth at the base, separated from the others by double interval, three or four teeth on lower edge, a spine on the anterior edge of the shell above the base of the external antennæ, feet of second pair slender, filiform, multiarculate, longest nearly twice the length of shell and rostrum together.

* HIPPOLYTE PALUDOSA.—Charleston Cabinet. Obtained a few years since, in fresh water ponds, in St. Andrew's Parish, South-Carolina, and presented to me by F. S. HOLMES, Esq. The specimens were not quite perfect, having lost some of their feet and antennæ. Rostrum springing from the anterior part of the shell, long, projecting beyond the peduncle of internal antennæ, and a little beyond the lamellar appendage of the external antennæ, six to seven teeth on upper edge, three on lower, a spine on edge of shell, over the base of the external antennæ. This I believe to be the first announcement of fresh water species of *Hippolyte* in the United States. MILNE EDWARDS appears to regard *Hippolyte* as masculine; it surely is feminine and I have so regarded it.

RHYNCHOCINETES TYPUS, M. EDW.—New-York Cabinet. A fine specimen of a remarkable genus of M. EDWARDS, very near *Hippolyte*, but with the rostrum articulated with the shell, and moveable.

PANDALUS ANNULICORNIS, LEACH—Charleston Cabinet. Taken by myself from the stomach of a Cod or Haddock, at *Lynn, Mass.*

Palemon serratus, Fabr.—Boston Cabinet.

Palemon squilla, Fabr.—Boston Cabinet.

Palemon locusta, Fabr.—Boston Cabinet.

Palemon vulgaris, Say—New-York and Charleston Cabinets. *Coast of Massachusetts*, Dr. Gould; *New-York*, Dr. DeKay; common *in Charleston Harbour;* on Coast of *Florida*, Say.

Palemon carcinus, Olivier—Boston, Philadelphia and Charleston Cabinets.

Palemon jamaicensis, Olivier—Boston and Charleston Cabinets. Also in American Museum in New-York. My specimens are from the Island of Cuba, brought by Dr. Wurdemann.

Palemon punctatus, Randall—Philadelphia Cabinet. Supposed to come from the East Indies.

Palemon spinimanus. M. Edw. Charleston Cabinet. Brought with *P. jamaicensis*, from Cuba, by Dr. Wurdemann.

Palemon gaudichaudii, M. Edw.—Philadelphia Cabinet. Two fine specimens of this species of M. Edwards, first brought from Chili by Gaudichaud.

Palemon grandimanus. Rand—Philadelphia Cabinet.

Palemon gracilimanus, Rand—Philadelphia Cabinet.

4. TRIBE PENÆANA.

Sicyonia sculpta, M. Edw.—Boston Cabinet.

Penæus brasiliensis, Latr.—Charleston Cabinet. Under this name, I wish to indicate a species, which occasionally is met with on the *Coast of South-Carolina.* It agrees generally with M. Edwards' description of *P. caramote*,—having the rostrum running back to the posterior edge of the shell, with a sulcus on each side, continued equally far, and a third groove on the posterior part of the crest of the rostrum, also continued to the posterior edge of the shell—and I have sometimes so labelled it, but it has no spines on the base of the third pair of feet. My referring it to *P. brasiliensis*, Latr., is based on an assumption, it must be observed, that that species is Brazillian, and may occasionally visit our coast. I have not seen Latreille's description of it, and, therefore, cannot say that ours is new. Full grown individuals of this species are occasionally found in the shrimp trays in the market, containing the following species. Once in our market I saw a tray full of half grown individuals of this species.

Penæus setiferus, M. Edw.—Boston, Philadelphia, and Charleston Cabinets. Abundant at certain seasons in *Charleston Harbour.* With the preceding known as Shrimps in our market.

STOMAPODA.

Phyllosoma communis, Leach—New-York Cabinet.

Phyllosoma stylicornis, M. Edw.—New-York Cabinet. These specimens are the only representatives of this curious genus in our Cabinets.

Squilla maculata, Fabr.—Philadelphia Cabinet.

Squilla vittata, M. Edw.—American Museum, New-York.

Squilla scabricauda, Latr.—Boston, New-York, and Charleston Cabinets. My specimen was presented to me by Dr. T. L. Ogier, of Charleston, to whom it had been brought by a fisherman, who had taken it *off* *Charleston Harbour.*

Squilla mantis, Fabr.—Boston Cabinet. It is somewhat surprising that Milne Edwards, in his description of this species, does not allude to the differences pointed out by Say, between this species and his *S. empusa.* In this species, of the last four last thoracic segments, all but the last are bifurcate or bilobed at their exterior terminations, as it is tolerably well exhibited in the figure of Herbst, pl. 33. fig. 1; the anterior one, (or that just behind the large plate or shell of the animal,) is bifurcate, the two spines being in the same *horizontal plane* or one *anterior* to the other, and the two following segments are bilobate over the base of the feet. The lateral edges of the shell are not angulated, but rounded with tolerably uniform curvature. The figure in the Encycl. Method, pl. 295, fig. 1, is so coarsely executed, like several other figures in that work, that it can scarcely be regarded as an adequate representation; it exhibits, however, the two bilobate segments; the other figure, pl. 324, is of another species, *S. raphidea*, M. Edw., Seba's fig. pl. 20, fig 2, is a better one. Desmarest's figure of *S. mantis*, pl. 41, fig. 2, is referred to by Milne Edwards in his description of that species, but it is really a figure of *S. scorpio*, Latr, described by him two pages beyond. The figures of Degeer, pl. 34, fig. 1, and of Latreille, Hist. Crust., pl. 55, fig. 3, referred to by M. Edwards, I have not seen.

Squilla nepa, Latr.—Philadelphia Cabinet. Also in the American Museum, New-York.

Squilla empusa, Say—-Boston, New-York, Philadelphia and

Charleston Cabinets. This species is quite distinct from *S. mantis*, as was pointed out by SAY. Of the four last thoracic segments, the most anterior, or one just behind the shell, is bifurcate, but the two spines are in the same *vertical plane*, or one *above* the other, when the animal is in the usual position for locomotion, and the two following segments are not bilobate. *S. dubia*, M. EDW., and *S. Desmarestii*, RISSO, have a similar conformation. Dr. DEKAY, (op. cit. p. 33) does not allude to these characters, which distinguish it from *S. mantis*, though he insists on the distinctness of the two species. In this species there is also an obtuse angle on the lateral edges of the shell, which is wanting in *S. mantis*. Found on the *Coast of Rhode Island*, according to SAY; *New-York*, DE KAY; frequently taken in *Charleston Harbour*, whence my specimens are derived; *Coast of East Florida*, SAY.

* SQUILLA NEGLECTA—Charleston Cabinet. Obtained in *Charleston Harbour*. This new species resembles in many points, *S. empusa*, but is readily distinguished by the following characters. The thoracic segment just behind the shell is bifurcate, as in that species, with one spine above the other, but the uppermost is not narrowed gradually to an acutely pointed termination, bat its two edges are parallel, and the extremity is rounded, so that it is spatuliform and not spiniform, the median crest of the last abdominal segment terminates posteriorly in an acute spine, twice as long as in the preceding species.

SQUILLA DUBIA, M. EDW.—Boston and Charleston Cabinets. My specimens were obtained *in Charleston Harbour*, but it appears to be rare. Readily distinguished from *S. empusa*, by there being only four or five denticulations between the large terminal teeth of the last abdominal segment, and three or four between these teeth and the next large ones; as in *S. mantis*, there are six teeth to the claws. A good idea of this species may be obtained from DESMAREST's figure, of *S. mantis*, pl. 41, fig. 2, which, I feel confident, was drawn from a specimen of *S. scorpio*, LATR., a species closely allied to this; only four teeth, however, instead of five, on the claws, are distinctly indicated in the figure.

SQUILLA DESMARESTII, RISSO.—Boston Cabinet.

SQUILLA STYLIFERA, LAM.——Philadelphia and Charleston Cabinets.

SQUILLA CERISII, ROUX. New-York and Philadelphia Cabinets.

Gonodactylus chiragrus, Latr.—Boston, Philadelphia, and Charleston Cabinets. My specimens are *from Key West.*

Gonodactylus scyllarus, Latr.—Boston Cabinet.

Gonodactylus styliferus, M. Edw.—Philadelphia Cabinet.

The preceding enumeration contains 250 species, of which 22 are described as new. Of those enumerated, 94 belong to the Atlantic Coast of the United States, of which 19 are new, and 10 more, though already described, yet were not distinctly recognized as belonging to our Fauna. The species of Podolphthalmian Crustacea, known to belong to our Fauna, but not embraced in the above enumeration, are *Pilumnus Harrisii*, Gould; *Pinnotheres cylindricum*, Say; *P. depressum*, Say, *Porcellana pilosa*, M. Edw., *Crangon boreas*, Fabr., and *Mysis spinulosus*, Leach, giving 100 species to our Fauna.

There are several undetermined, and in some cases, most probably undescribed forms, both native and foreign, in my Cabinet, as also in the others, but the want of works of reference, and particularly want of specimens, deter me from describing at present. I have made several attempts to obtain correspondents on the coast of the northern States, and in Florida and Cuba, as also in Europe, for exchange of specimens, but so far without success.

XXVI

EXTRAIT DES ANNALES DE LA SOCIÉTÉ ENTOMOLOGIQUE
DE FRANCE.
(2e Série, tome II. 1er trimestre.)

NOTICE

SUR QUELQUES MONSTRUOSITÉS OBSERVÉES DANS DES CRUSTACÉS APPARTENANT AUX GENRES *Carcinus*, *Lupa*, *Homarus* ET *Astacus*.

Par M. H. LUCAS.

(**Séance du 4 Octobre** 1843.)

Dans une notice que j'ai lue à la Société entomologique et qui a été insérée dans le premier cahier de cette année, j'ai fait connaître un cas de monstruosité qui se trouvait dans une antenne droite d'un Coléoptère appartenant au genre des *Colymbetes*. Dans cette petite notice, que j'ai cru devoir accompagner de quelques remarques tendant à indiquer les divers cas de monstruosités qui avaient été observées par les auteurs, j'ai dit que jusqu'à présent cette sorte d'étude n'avait été faite que sur des insectes et qu'aucun cas de monstruosité n'avait encore été remarqué dans les animaux qui forment les trois premières classes, c'est à dire les Crustacés (1), les Arachnides et les Myriapodes. Au sujet de la seconde classe, ou celle des Arachnides, j'ai signalé une anomalie fort remarquable qui se présente dans la queue d'un d'un Scorpionide et que je ferai connaître lorsque ce *Scorpio*, qui appartient au genre des *Buthus* sera à ma disposition.

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(1) A ce sujet, je ferai cependant remarquer que Rœsel dans sa Récréat. des Ins. 3e part. a figuré dans ses pl. 70 et 71 plusieurs cas de monstruosités fort remarquables, particulièrement les figures portant les numéros 28, 29, 30, 32 et 33, qu'il a observées dans l'*Astacus fluviatilis*, Auct.

Les diverses anomalies dont je vais entretenir de nouveau la société se trouvent dans les premières paires de pattes de Crustacés appartenant à deux familles distinctes et à quatre genres différents. Les organes dans lesquels résident ces diverses monstruosités sont désignés en carcinologie sous le nom de doigts préhensiles et les diverses formes qu'affectent ces anomalies sont si curieuses que j'ai cru devoir les décrire dans nos Annales, recueil où se trouve déjà réuni un grand nombre de faits très-intéressants sur les animaux articulés.

La première anomalie que je vais faire connaître se montre dans la première paire de pattes du côté gauche, d'un crustacé Brachyure, de la famille des Portuniens, excessivement commun sur nos côtes océaniques et méditerranéennes, espèce comestible et connue dans le langage scientifique sous le nom de *Carcinus mœnas*, Baster. Cette première paire de pattes, malgré l'anomalie qu'elle présente, est normale jusqu'au cinquième article inclusivement; le sixième article ou celui qui est mobile ne présente rien d'anomal dans sa forme, seulement à partir du point où il s'articule avec le cinquième article, naissent deux autres doigts très-grands, dont l'un se dirige vers la partie supérieure et l'autre vers la partie inférieure; ces nouveaux articles ou doigts se joignent intimément à leur base à partir du point où ils s'articulent avec le cinquième article, de manière que chez ce *Carcinus mœnas* le doigt mobile au lieu d'être monodactyle se trouve être tridactyle, disposition qui devait gêner beaucoup ce Crustacé pour s'emparer des animaux propres à sa nourriture et surtout pour se défendre des nombreux ennemis dont cette espèce est sans cesse entourée. Ces deux doigts, à part la manière dont ils sont joints entre eux, ne présente rien d'anomal dans leur forme ; seulement ils sont un peu plus petits et même les dents dont ils sont armés correspondent exactement comme nombre à celles dont les doigts normaux sont munis. Par la ressemblance que ces doigts surnumémaires ont avec les doigts normaux, je suis porté à croire que celui qui est dirigé supérieurement a pour analogue l'extrémité du cinquième article ou le doigt qui n'est pas mobile, et que l'autre article ou celui qui est dirigé inférieurement a pour analogue le sixième article ou celui qui est mobile. Il est fâcheux que ce crustacé ait été desséché, j'aurais pu m'éclairer davantage par la position et surtout par la direction des apodêmes d'insertion.

La seconde anomalie se présente chez un crustacé également de l'ordre des Décapodes brachyures et de la famille des Portuniens ; c'est aussi dans la première paire de pattes également du côté gauche que se trouve cette anomalie qui a quelque analogie, comme on le verra, avec celle que je viens de décrire. Tous les articles de cette première paire de pattes (le cinquième excepté cependant), sont normaux et la monstruosité se présente à l'extrémité du cinquième article ou doigt ; car ce dernier qui ordinairement est monodactyle se bifurque à sa naissance et devient didactyle. Par la présence de ce second doigt, le premier ou celui qui est normal a éprouvé une déviation très-sensible, c'est-à-dire que ce dernier par sa position ne pouvait pas former pince avec le doigt supérieur ou le sixième article qui est mobile et devait considérablement gêner ce Crustacé dans ses mouvements de préhension. Le premier doigt à part sa déviation n'a rien d'anormal dans sa forme, seulement il est grêle; le second doigt ou celui qui est anormal et qui se dirige du côté interne est court, ramassé et armé d'un moins grand nombre de dents que celui qui est normal. C'est à une espèce du genre *Lupa* qu'appartient cette première paire de pattes dont je n'ai pu me procurer que le côté gauche, peut-être est-ce à l'espèce désignée sous le nom de *Lupa dicantha* Latr.

La troisième anomalie quoique ayant un peu d'analogie avec la précédente est fort remarquable : c'est dans la première paire de pattes du côté droit d'un crustacé Macroure, très-recherché comme aliment, commun sur nos côtes méditerranéennes mais beaucoup plus sur nos côtes océaniques et désigné par nos pêcheurs sous le nom de *Homard* (*Homarus vulgaris* Edw.). Tous les articles de cette première paire de pattes dans cette troisième anomalie sont normaux, à l'exception cependant de l'extrémité du cinquième article qui est court, grêle et ne forme pas pince avec le doigt mobile. A partir du point où le cinquième article prend le nom de doigt, naît du côté interne un appendice allongé, très-large, à terminaison spininiforme. Le cinquième article par la présence de cet appendice éprouve une très-grande déviation et au lieu d'être monodactyle devient didactyle. Cet appendice surnuméraire qui devait être très-incommode à ce crustacé surtout dans les mouvements de préhension est remarquable en ce qu'il semble vouloir se diviser. En effet, si on examine attentivement cet appendice surnuméraire qui est très-large, on remarque qu'il est pourvu de deux rangées de dents bien distinctes, et qu'à son extrémité il est terminé par des ongles robustes, recourbés, assez semblables à ceux que l'on voit dans les articles à l'état normal; de plus l'intervalle qui existe entre ces deux rangées de dents est fortement déprimé longitudinalement, ce qui semble indiquer la tendance que cet appendice avait à vouloir se diviser. Dans ce troisième cas de monstruosité, je puis dire comme pour les précédents que ces appendices sont des doigts surnuméraires.

Enfin la quatrième anomalie, bien moins remarquable que celles que je viens de faire connaître, se présente dans la première paire de pattes, mais du côté gauche d'un crustacé comestible, très-commun dans nos rivières et nos ruisseaux et connu sous le non d'*Ecrevisse* (*Astacus fluviatilis*, Auct.) C'est aussi dans le cinquième article, près de la base du doigt non mobile que se présente cette anomalie. On peut dire que dans ce quatrième cas de monstruosité tous les articles de cette première paire de pattes sont normaux, et que dans les mouvements de préhension l'animal ne devait être nullement gêné pour saisir les matières propres à sa nourriture. En effet, le tubercule très allongé, spiniforme, à direction inférieure que présente la base de l'extrémité du cinquième article formant le doigt, quoique par sa présence rendant plus faible la naissance de ce doigt, ne devait lui être incommode que dans les mouvements de progression. Ce tubercule qui affecte la forme d'une épine très-prononcée semblerait être un doigt surnuméraire, mais qui n'ayant pu atteindre, comme dans les anomalies que je viens de décrire, un développement assez prononcé m'empêche de pouvoir dire avec certitude que c'est bien à un doigt surnuméraire qu'il faut rapporter l'existence de cet appendice (1).

Dans ma première notice, j'ai fait remarquer que la plupart des anomalies que je venais de citer, les unes, et c'est le plus grand nombre, appartenaient au côté droit, que j'en connaissais très-peu qui se présentassent du côté gauche (1). Dans cette notice, je ferai observer que les quatre cas de monstruosité que j'y décris, trois appartiennent au côté gauche, et quoique cela ne tire pas à conséquence j'ai cru cependant devoir signaler cette disposition qui peut-être paraîtra fort ordinaire lorsqu'on aura acquis sur ce genre d'étude plus de faits que nous n'en connaissons encore aujourd'hui.

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(1) Rœsel, *op. cit.*, pl. 70 et 71, figure plusieurs anomalies qu'il a observées dons les premières paires de pattes de l'*Astacus fluvia-*

Adoptant pour base de classification le travail remarquable de M. Isidore Geoffroy-Saint-Hilaire, ayant pour titre : *Histoire générale et particulière des Anomalies de l'organisation,* je suis porté à ranger ces quatre cas de monstruosité dans la catégorie de ceux où il y a anomalie par augmentation et par diminution.

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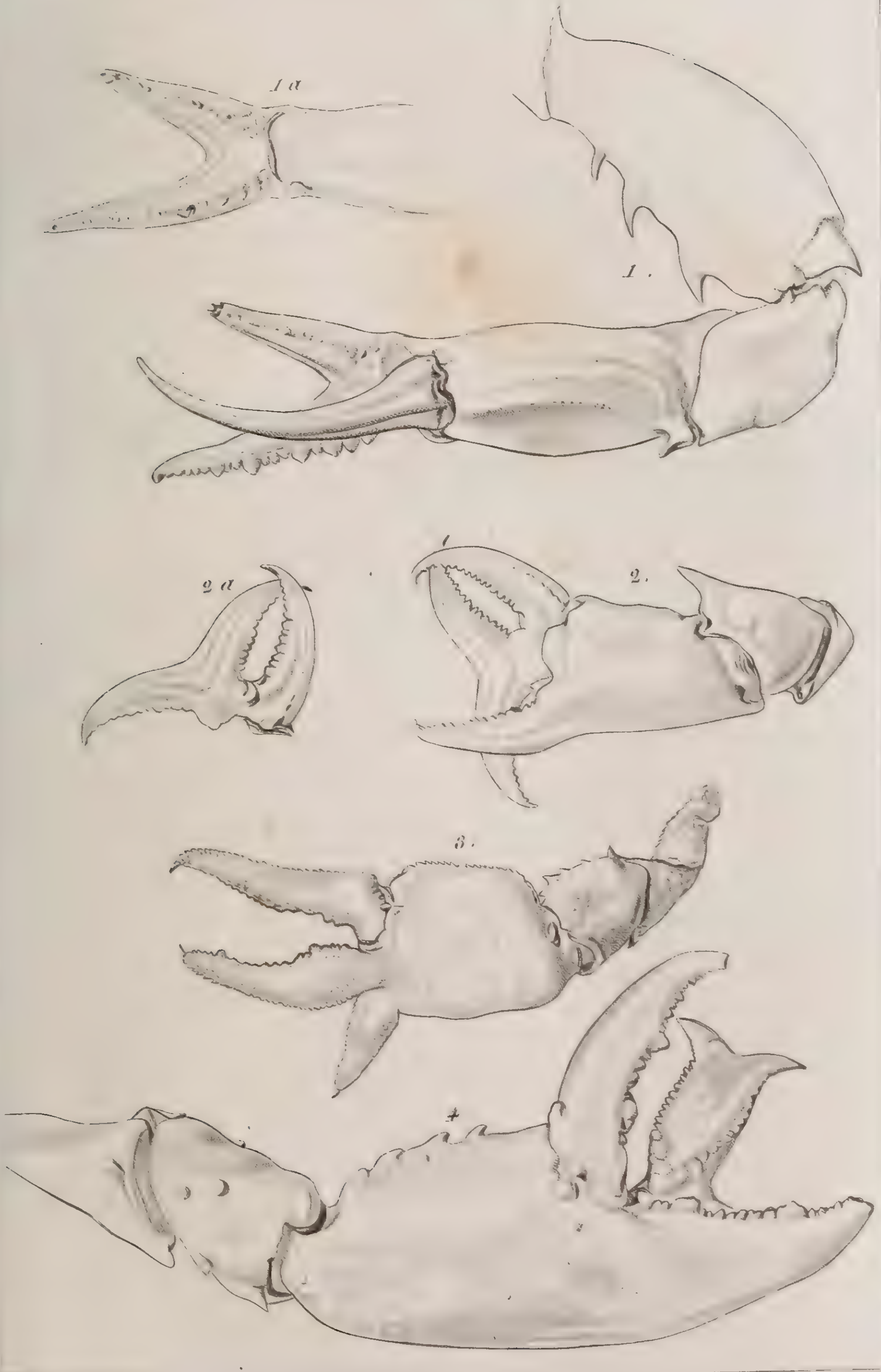
tilis, et parmi ces cas anormaux il en est un qui a beaucoup d'analogie avec celui que je viens de faire connaître. Ces monstruosités sont au nombre de six dont quatre appartiennent au côté gauche et deux seulement au côté droit. Ces anomalies sont fort remarquables, surtout celles qui portent les numéros 28, 29, 30, 32 et 33. Tantôt c'est au sixième article mais le plus souvent au cinquième que ces monstruosités se présentent et tous les cas anormaux figurés par Rœsel me font supposer que les articles chez lesquels se trouvent ces anomalies pourraient bien être des doigts surnuméraires mais qui n'auraient pas atteint tout leur développement comme cela a lieu dans le *Carcinus mœnas* et dans la *Lupa dicantha.*

(1) *Scarites pyracmon*, Alexandre Lefebvre, Mag. de zool. 1831, pl. 40, fig. 1 et 2; cette figure a été reproduite par M. Seringe dans la planche de son mémoire sur les monstruosités des Insectes, Ann. de la Société Linnéenne de Lyon, 1836, fig. 3 et 4.

Explication des figures de la planche I.

1. Patte monstrueuse (côté gauche), d'une *Lupa dicantha.* Latr.
1 *a.* Doigts monstrueux vus de face.
2. Patte monstrueuse (côté gauche) d'un *Carcinus menas.* Bast.
2 *a.* Doigts monstrueux détachés.
3. Patte monstrueuse (côté gauche) d'un *Actacus fluviatilis.* Rond.
4. Patte monstrueuse (côté droit) d'un *Homarus vulgaris.* Edw.

* * *



Bocourt del. *Aug. Dumenil sculpt.*

1, 1 a. Première paire de pattes monstrueuses d'une *Lupa dicantha*, Latr.
2, 2 a. " " " " d'un *Carcinus mænas*, Bast.
3. " " " " d'un *Astacus fluviatilis*, Rond.
4. " " " " d'un *Homarus vulgaris*, Edw.

XXVII

EXTRAIT DES ANNALES
DE LA
SOCIÉTÉ ENTOMOLOGIQUE
DE FRANCE.

Pl. *15

IIème SÉRIE, TOME VII. — e TRIMESTRE DE 185

"OBSERVATIONS

SUR

QUELQUES ESPÈCES NOUVELLES DE CRUSTACÉS

QUI HABITENT LES POSSESSIONS FRANÇAISES

DU NORD DE L'AFRIQUE."

PAR M. H. LUCAS.

(**Séance du 9 Mai** 1849).

§ 1. G. ANCEUS.

Le genre *Anceus* créé par Risso (1) aux dépens des *Cancer* de Montagu a été généralement adopté par tous les carcinologistes et même par M. Milne Edwards, qui le range dans sa section des Isopodes Nageurs et dans la famille des Praniziens. Leach dans l'Encyclopédie méthodique, atlas, pl. 336, fig. 25 et explicat. p. 9, a désigné sous le nom de *Gnathia* une nouvelle coupe générique excessivement voisine de celle d'*Anceus*, et c'est le *Cancer maxillaris* de Montagu qui a servi au carcinologiste anglais à établir ce nouveau genre. Dans la figure donnée par Montagu de ce crustacé, in Transact. of the Linn. Societ. vol. 7 p. 65, pl. 6, fig. 2 et qui a été copiée par Leach d'après Montagu dans l'Encyclopédie méthodique, pl. 336 fig. 25, le *Gnathia* (*Cancer*) *maxillaris*, qui est la seule espèce citée par Leach pour l'établissement de ce genre,

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(1) Hist. nat. des Crustacés de Nice, p. 51, pl. 2, fig. 10 (1816,)

diffère des *Anceus* en ce que le dernier segment de la queue est arrondi, cilié et sans lamelles natatoires: il est probable que l'individu qui a servi de type à ce genre était incomplet et par conséquent c'est à tort que Leach a supposé ce crustacé être privé d'une nageoire caudale. A part cette différence, qui est tout-à-fait anormale, le genre *Gnathia* ressemble entièrement aux *Anceus*, et c'est avec juste raison que Lamarck (1), A.G. Desmarest (2), M. Westwood (3) et M. Milne Edwards (4) le considèrent comme un véritable *Anceus*. Le nom de *Gnathia*, imposé par Leach au *Cancer maxillaris* de Montagu en 1816 aurait pu cependant lui être conservé, mais les caractères indiqués par ce zoologiste pour différencier ce genre sont tellement fugitifs et surtout ces caractères ayant été établis sur un individu mutilé, je crois que les carcinologistes ont eu raison d'adopter le nom d'*Anceus*, qui, quoique établi également en 1816, est cependant postérieur à celui du Dr Leach. Je ferai aussi remarquer que dans l'ordre des Coléoptères, il y a déjà un genre qui porte le nom de *Gnathia*; il a été établi par M. Kirby dans le tom. 12 des Trans. of the Linnean Society of London, p. 425; ce genre ne date que de 1817, mais comme il est généralement adopté par tous les entomologistes, la dénomination du docteur Leach doit être mise en synonymie, afin d'arrêter toute confusion.

Le nombre des espèces représentant le genre des *Anceus* est très limité; M. Milne Edwards en signale trois dans son ouvrage sur les crustacés dans les suites à Buffon publiées par le libraire Roret, et lorsqu'en 1844, je rédigeais la partie qui traite de ces animaux pour mon travail sur l'histoire naturelle des animaux articulés de l'Algérie, je crus devoir rapporter à une espèce connue (*Anceus rapax*, Edw.) l'*Anceus* que j'avais pris sur les côtes d'Afrique. Mais ce crustacé que je ne possédais qu'en très mauvais état ayant été rencontré de nouveau par mon collègue M. Deshayes sur les côtes de l'est, j'ai été conduit, en étudiant ce second individu assez bien conservé, à reconnaître que ce crustacé n'était pas l'*Anceus rapax* de M. Milne Edwards, mais formait une espèce nouvelle.

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(1) Hist. nat. des Anim. sans vertèb., tom. 5, p. 167 (1818.)

(2) Consid. génér. sur les Crust., p. 282, pl. 46, fig. 6 (1825).

(3) Ann. des Sc. nat., 1re série, tom. 27, p. 321 (1832).

(4) Hist. nat. des Crust., tom. 3, p. 197 (1840).

Anceus vorax, Lucas.

Pl. 15, fig. 1.

Anceus rapax, Ejusd. Hist. nat. des Anim. articul. de l'Algérie, tom. I, p. 85, N° 150.

Long. 7 millim. 1/2. Larg. 2 millim. 1/2.

A. mandibulis flavotestaceis, magnis, validis, anticè fortiter acuminatis, infrà dilatis intusque denticulatis; antennis primi paris brevibus, secundis elongatis, testaceo rufescentibus subtilissimeque ciliatis; capite fere tam longo quàm lato, testaceo subviolaceo, in medio longitudinaliter profunde depresso anticèque dente trianguliformi armato; segmentis thoracis brevissimis, latis, tertio in medio sat fortiter depresso quintoque elongato, augusto, postice fortiter emarginato; abdomine fusco, augusto, septimo articulo posticè acuminato; pedibus exilibus, flavo subtestaceis subtillisimèque ciliatis.

Elle est très voisine de l'espèce océanienne (*Anceus rapax*, Edw.) mais bien distincte par les mandibules, qui sont presque aussi longues que la tête, et qui à l'état de repos, se croisent à leur extrémité; ce caractère semblerait rapprocher cette espèce africaine de celle appelée

Anceus forficularis Risso, avec laquelle elle ne pourra être confondue, si toutefois la figure qu'en donne le naturaliste piémontais est exacte, à cause de sa tête, qui est presque aussi longue que large, tandis que dans l'espèce de la mer de Nice, ce même organe est beaucoup plus large que long; enfin il est aussi à remarquer que, chez l'*Anceus vorax*, le dernier segment abdominal est étroit, allongé, presque terminé en pointe postérieurement, et ne dépasse pas les lames terminales des fausses pattes. Les mandibules d'un jaune testacé, sont très fortes, allongées; terminées en pointe recourbée et relevée à leur extrémité, où, à l'état de repos, elles se croisent l'une sur l'autre; intérieurement, elles sont très larges, forment une saillie lamelleuse très prononcée, trianguliforme, à côté externe convexe, à côté interne concave, et assez fortement denticulée dans toute la longueur du bord interne; ces organes sont lisses, et, à partir de leur naissance, en dessus, ils présentent un bord saillant assez prononcé, tranchant, mais qui n'atteint à peu près que la moitié de leur longueur; l'autre moitié, au contraire est arrondie, mousse, les antennes de la première paire sont beaucoup plus courtes que celle de la seconde paire; elles sont d'un testacé roussâtre et très finement ciliées. La tête, presque aussi longue que large, est d'un testacé légèrement violacé; dans son milieu, elle présente une dépression longitudinale fortement prononcée, qui s'élargit progressivement jusqu'à sa partie antérieure, où elle est pourvue d'une saillie ou dent trianguliforme; postérieurement, on aperçoit un petit sillon transversal, suivi d'une petite saillie également transversale et assez fortement prononcée; quelques poils roussâtres, clairement semés, se font remarquer sur la partie postérieure de cet organe. Les yeux, tout-à-fait situés à la partie antérieure de la tête, près de la saillie sur laquelle sont insérées les antennes, sont bruns, assez fortement réticulés, et forment une masse ovalaire disposée dans le sens longitudinal des mâchoires, plus longues que larges, operculiformes, lisses, d'un jaune très légèrement teint de violacé; les trois premiers segments thoraciques sont très courts, avec le troisième présentant, dans son milieu, une dépression longitudinale assez profondément enfoncée; le quatrième segment est un peu plus large que les précédents; quant au cinquième, il est très allongé, un peu plus étroit que les autres, fortement échancré postérieurement, échancrure dans laquelle vient s'insérer l'abdomen, qui est très étroit; cet organe d'un brun foncé est composé de sept segments, dont le dernier allongé étroit, presque terminé en pointe à sa partie postérieure, est plus court que les lames terminales des fausses pattes; celles-ci sont ciliées sur le bord, ainsi que les parties latérales des segments abdominaux. Les pattes sont grêles, peu allongées, d'un jaune très légèrement testacé et très finement ciliées.

Cette espèce remarquable que je n'ai pas rencontrée a été découverte par mon collègue M. Deshayes; elle se tenait dans des trous pratiqués par des Tarets dans des bûches de bois qui avaient longtemps séjourné dans la mer (Rade de Bône.)

§ 2° G. PRANIZA.

Sous le nom de *Praniza*, le docteur Leach désigne un genre de crustacés qui a été adopté et caractérisé par Latreille dans l'Encyclopédie méthodique, tom. X, p. 198 (1825). C'est aux dépens des *Oniscus* de Slabber que cette coupe générique, adoptée par tous les carcinologistes et indiquée seulement par Leach dans quelque travail inédit a été créée. Les espèces qui composent ce genre singulier, sont peu nombreuses. M. Westwood, dans le tom. 27 de la première série des Annales des Sciences naturelles, en fait connaître cinq espèces qui ont été réduites au nombre de trois par M. Milne Edwards dans le tome 3 de son Histoire naturelle des Crustacés, p. 194 et 195.

Les carcinologistes qui ont décrit ou signalé les espèces représentant cette coupe générique, donnent pour patrie à ces crustacés l'Océan ainsi que les côtes du Sethland et du Groënland. On n'en connaît que deux espèces qui habitent la Méditerranée et qui ont été décrites par Risso dans le tome V de son Histoire naturelle de l'Europe méridionale, p. 82, N^{os} 109 et 110. Les caractères indiqués par le naturaliste piémontais pour différencier ces espèces, sont tellement vagues qu'il a été impossible à M. Milne Edwards, op. cit. tom. 3, p. 195, de pouvoir les distinguer avec quelque certitude des espèces adoptées par ce savant dans son travail. Lorsque dans mon Histoire naturelle des Animaux articulés de l'Algérie, j'ai signalé deux espèces nouvelles de ce genre, j'ai essayé de les rapprocher des *Praniza plumosa* et *ventricosa* de Risso, mais il m'a été impossible d'établir une comparaison certaine, à cause des caractères qui ont été trop vaguement exprimés par le naturaliste piémontais.

Les mœurs des espèces qui composent cette coupe générique sont encore peu connues; M. Milne Edwards dit que ces crustacés se trouvent quelquefois sur les branchies des poissons, mais ne sont pas toujours parasites. Quant aux habitudes des *Praniza*, ajoute M. Westwood opusc. cit. tom. 27, il résulte des observations de Montagu et d'Otto, ainsi que de la circonstance qui m'a fait les trouver parmi un grand nombre de crustacés parasites, que la *Praniza branchialis* d'Otto est également parasite sur diverses espèces de poissons. Suivant MM. Audouin et Milne Edwards, qui ont rencontré des *Praniza* sur les côtes de la Manche, ces crustacés étaient libres et ils les voyaient marcher sur les fucus à l'aide de leurs pattes; ils se servaient de leurs appendices abdominaux pour nager. Les pièces de la bouche étaient sans cesse en mouvement, à peu près comme cela se remarque dans les crustacés décapodes.

Je n'ai point observé les espèces qui ont été prises sur les côtes des possessions françaises du nord de l'Afrique, mais j'ai appris par mon collègue M. Deshayes qui les a découvertes, que ces singuliers crustacés se tenaient dans des trous peu profonds de vieilles poutres qui préalablement avaient été perforées par des Tarêts, c'est dans le port de Bône, dans des pièces de bois depuis longtemps immergées et qui servent à l'amarrage des barques, que ces Pranizes ont été rencontrées.

Praniza mauritanica, Luc. Hist. nat. des Anim. articul. de l'Algérie, t. 1, fig. 87, N° 150 bis.

(Pl. 15, fig. 2.)

Long. 5 mill. 1/2. Larg. 2 mill.

P. augusta, fusco-viridis, antennis, pedibus abdomineque testaceis, subtiliter viridi maculatis; capite ferè tàm longo quàm lato, anticè rotundato, antennis exilibus, elongatis, secundarum ultimo articulo extus utrinque uniciliato; tribus primis segmentis thoracis brevissimis, augustis, attamen tertio longiore, subsequentibus elongatissimis, latis, membranaceis, maximè fusco viridibus; abdomine augusto, ciliato; pedibus elongatis, exilibus.

Elle ressemble un peu à la *Praniza maculata*, Westwood, mais elle est plus étroite et surtout beaucoup plus allongée. Elle est d'un vert bouteille foncé, à l'exception des antennes, des organes de la locomotion et de l'abdomen, qui sont testacés et très finement maculés de vert foncé. La tête, presque aussi longue que large, non globuleuse, est assez convexe, arrondie antérieurement avec le rétrécissement qu'elle présente à sa base et qui la sépare du thorax, étroit et assez fortement prononcé; il est aussi à remarquer qu'à sa partie antérieure, elle est pourvue d'un petit appendice trianguliforme, retréci à sa base, et qui semble articulé avec la portion antérieure de la tête; ce petit appendice, antérieurement, est dépassé par les mandibules, qui sont grêles et assez allongées. Les yeux sont très saillants, d'un brun foncé. Les antennes sont grêles, allongées, testacées avec celles de la seconde paire portant à la base de leur dernier article une petite soie allongée. On ne distingue du thorax que trois segments, dont les deux premiers sont étroits, plus larges cependant que la tête; le troisième est plus large et surtout beaucoup plus allongé, et recouvre un peu en arrière le segment suivant, ou le quatrième, qui est confondu avec le cinquième; ces segments sont très allongés, membraneux, d'un vert beaucoup plus foncé que le reste du corps, dont ils forment au reste la plus grande partie. L'abdomen est étroit, deux fois plus court que le thorax, avec le dernier segment, ou le sixième, terminé en pointe, et les fausses pattes auxquelles cet article donne naissance proportionnellement plus large que lui, spatuliformes et armées de longs cils; je ferai aussi observer que les fausses pattes que présentent les cinq premiers segments abdominaux sont très étroites et assez fortement ciliées. Les pattes sont allongées, grêlées, glabres, si ce n'est cependant quelques cils que présente l'extrémité des quatrième et cinquième articles ; en dessous, tout le corps est d'un vert foncé.

Cette espèce, qui habite le port de Bône, a été rencontrée par M. Deshayes, qui a pris cette Pranize dans des pieux immergés et qui probablement avaient été perforés par des tarets.

Praniza obesa, Luc. Hist. nat. des Anim. articul. de l'Algérie, tom. 1, p. 88, nº 150, ter.

Pl. 15, fig. 3.

Long. 5 millim. Larg. 3 millim. 1/2.

P. flavo-testacea, capite multo latiore quàm longiore in medio longitudinaliter subconvexó anticèque subacuminato; antennis sat elongatis, secundis multò longioribus quàm primis; duobus segmentis thoracis brevissimis, latis, subsequentibus confusis, latissimis, membranaceis, translucentibus marginibusque sinuatis; abdomine brevi, secundo, tertio, quartoque latis, subsequentibus angustiusculis, ultimo elongato, angusto, posticè sat fortiter acuminato; pedibus elongatis, exilibus, ciliatis, attamen primo secundoque paribus brevibus.

Elle est fort remarquable par sa forme courte et ramassée et ne ressemble à aucune des espèces connues, si ce n'est cependant à la *Praniza ventricosa* de Risso; elle est d'un jaune testacé, la tête, beaucoup plus large que longue, légèrement convexe longitudinalement dans son milieu, est sensiblement terminée en pointe à sa partie antérieure, avec le rétrécissement qu'elle présente à sa base, et qui la sépare du thorax, très peu apparent, la petite pièce qu'elle présente antérieurement est aussi beaucoup plus large que longue, avec sa partie antérieure assez profondément échancrée. Les antennes de la seconde paire sont beaucoup plus allongées que celles de la première paire, et ces organes sont très finement ciliés. On ne distingue que les premier et second segments du thorax, qui sont très courts et plus larges que la tête; quant aux segments suivants, ils sont tous confondus, et forment une masse à peu près de forme ovoïde et à côtés latéraux assez fortement sinués; cette masse, qui est le représentant des troisième, quatrième et cinquième segments, est membraneuse, et, à travers le derme, qui est tout-à-fait transparent, on aperçoit les œufs agglomérés entre eux, d'un jaune roussâtre et de forme arrondie. L'abdomen est très court avec les trois segments médians plus larges que les premiers et les postérieurs; le dernier segment abdominal, plus étroit, mais plus gros que les précédents, est terminé en pointe à sa partie postérieure; il est séparé par la lame des dernières fausses pattes, ainsi que les parties latérales des segments abdominaux. Les pattes sont grêles, allongées, surtout celles des troisième, quatrième et cinquième paires; quant à celles des première et seconde paires, elles sont beaucoup plus courtes.

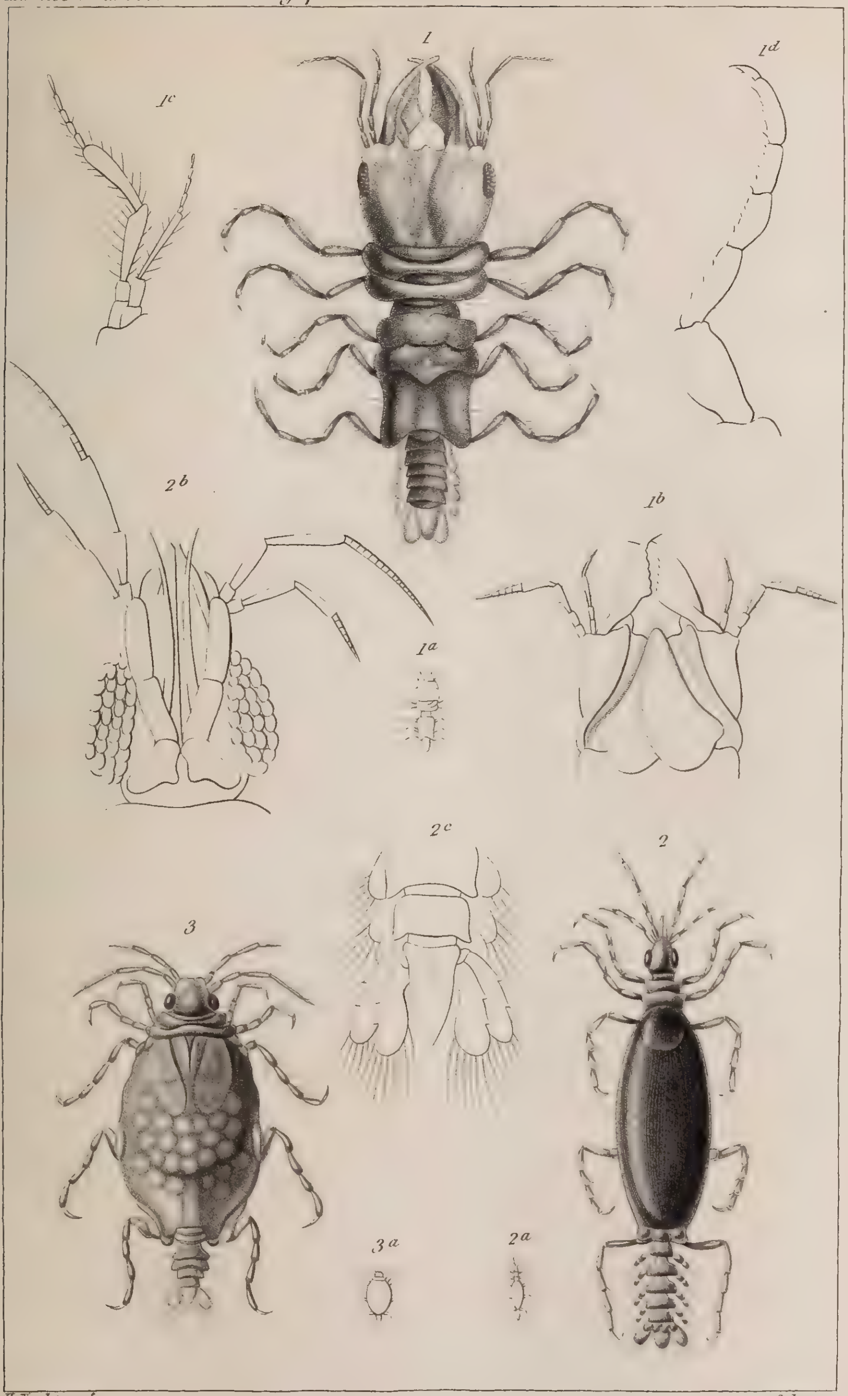
Cette espèce a été rencontrée dans les mêmes conditions que la précédente.

Explication de la planche 15.

Fig. 1. *Anceus vorax*, grossi; 1*a* la grandeur naturelle; 1*b* la tête grossie vue en dessous; 1*c* les antennes grossies; 1*d* une patte de la première paire grossie vue de profil.

Fig. 2. *Praniza mauritanica*, grossie ; 2*a* la grandeur naturelle; 2*b* la tête grossie vue en dessous; 2*c* les derniers segments abdominaux et la nageoire caudale grossie vus en dessus.

Fig. 3. *Praniza obesa*, grossie; 3*a* la grandeur naturelle.



H. Nicolet pinx.t
Sebin sc.

1. *Anceus vorax*, Luc. 2. *Praniza mauritanica*, Luc.

3. *Praniza obesa*, Luc.

Imp. de J. Delarue.

XXVIII
1848

II.—*Note on the genus* Cypridina, *M. Edwards; with a description of two new species.* By W. Baird, M.D., F.L.S. &c.

[With two Plates.]

The genus *Cypridina* was founded by M. Edwards in 1838, in a note to the second edition of Lamarck's 'Hist. Nat. An. sans Vertèbres,' and was afterwards more fully detailed in the third vol. of his 'Hist. Nat. des Crustacées.' The animal resembles a good deal in its general form and structure that of the genus *Cypris*. From his observations however it appears to have two eyes, distinct from each other; two pairs of antennæ, both pediform; one pair of natatory feet, and a peculiar organ apparently for supporting the ova, similar in purpose to, but differing in structure from, the second pair of feet in the *Cypris*. In 1840 M. Philippi published a paper in the sixth vol. of the 'Ann. and Mag. Nat. Hist.' in which he describes and figures a small Entomostracan allied to the genus *Cypris*, and to which he gives the name of *Asterope*. In some of its characters as given by him, it differs from the *Cypridina* of Edwards,—points of difference which he particularly mentions,—but in others it resembles it very closely. I have very lately had opportunities of examining two species of Entomostraca which I can only refer to the genus *Cypridina*, and which, upon dissection, I found in several of its parts to partake of the nature and form of that genus, and in other parts to resemble *Asterope*. From this mixture of the characters of the two genera, and taking into consideration the minuteness of the parts examined, and the different appearance these same parts assume in different positions under different microscopes and with different observers, I am inclined to believe these two genera to be identical. Waiting however till better opportunities occur for examining these little creatures, I shall content myself at present with describing two new species that have lately occurred to me.

Sp. 1st. *Cypridina MacAndrei*. Pl. VI. *B*. figs. 1, 2. Shell of an oval shape; the two extremities prolonged into sharp points; that of upper extremity curved and projecting forwards and a little upwards, that of inferior extremity projecting a little backwards. The whole shell is dotted over with small spots. On anterior edge near the upper extremity the shell is deeply notched. It is smooth and of a light colour (dry).

Several specimens of this little animal were placed in my hands by Mr. M'Andrew, who dredged them in deep water off the Shetland Isles. They were preserved dry, the whole animal being of the size of a small pin's head, and the shell being tolerably hard. In consequence of having been kept thus dry for a considerable time, the animal had become so shrunk that it was with considerable difficulty I succeeded in dissecting it. For the accompanying sketches of this species I am indebted to the pencil of Mr. Charles Ager.

The eyes I did not succeed in making out. The first pair of antennæ (Pl. VI. fig. 3) are large and pediform: they consist each of four articulations. The first or basilar joint is stout and of a considerable size; the second is nearly equally large; the third is short, about half the size, and the last is more slender and terminated by several strong setæ. From the junction of the third and fourth joints issues a bundle of long slender setæ as in *Cypris,* and the second articulation is beset on both upper and under edge with numerous strong setæ also. The organ which he calls the natatory foot (fig. 4) is however a very remarkable one: it consists of a very large, fleshy, round basilar joint, from which issue two branches separate from each other and differing in size and structure. The superior is much the larger of the two, and consists of one long and stout joint and six short ones, from the base of each of which issues a long hair. The inferior branch is much smaller and consists of two nearly equal joints, the lower terminating in two short claws. According to the figure given by M. Edwards, this pair of feet consists of only one branch instead of two. The mandible I did not succeed in seeing; but the first pair of jaws appeared to be very like that organ as represented by M. Edwards. The second pair of antennæ presented the appearance given in fig. 5, but the parts were too rigid to enable me to describe it distinctly. On the posterior portion of the animal there was another organ, which is described by M. Edwards in the *Cypridina* as a slender, cylindrical, filiform and twisted body which supports the ova. In this species it appeared a cylindrical body (fig. 6) composed of a very great number of small joints, of a twisted form, and giving off from each side several pretty long setæ which appear numerously jointed also and furnished at their extremities with sharp spines. It resembles more the same organ as described in the *Asterope* by Philippi than that in the *Cypridina* of Edwards. The abdomen is terminated by a double caudal plate (Pl. VI. fig. 7), broad, flat, and armed with nine spines; six of which are very strong and serrated on their under edge. The first is the longest and they gradually become shorter as they descend, the three last being much smaller than the others, not serrated on their under edges, but furnished with a tuft of short setæ at their extremities. This caudal plate appears to be a simple continuance of the abdomen, and not articulated with it as in the tail of *Cypridina* figured by M. Edwards, and in this particular resembles much more nearly that organ as represented by Philippi in his *Asterope.*

Sp. 2nd. *Cypridina Adamsi.* Pl. VII. fig. 1. Shell of the size of a small pea, of an oval form and very convex, rounded at the base and somewhat pointed at its apex, under which anteriorly it is deeply notched. The shell is smooth, shining, and of a pale yellow or cream colour (dry).

Two or three specimens were brought home by Mr. Arthur Adams, Assistant Surgeon Royal Navy, attached to H.M. Ship 'Samarang,' who dredged them during the late voyage of that vessel in the South Atlantic Ocean. They had as well as the preceding species been preserved dry, and from the long time they had been kept so, it was almost impossible to dissect the animal. However by steeping them in spirits of wine for some time, I succeeded in obtaining the body of the animal sufficiently entire to be able to ascertain the genus. The anterior antenna (fig. 2) consists, as in the preceding species, of four joints, the three last having numerous pretty long plumose setæ springing from the upper edge, and the last being terminated by a tuft of similar but longer setæ. The natatory foot (fig. 3), as in the other species, consists also of a very large basilar joint which gives origin to two branches; the upper of which consists of one very long joint and six very short ones, from the base of each of which issues a long plumose seta. The oviferous foot (Pl. VII. fig. 4) resembles very much that of the preceding species, being cylindrical, and beset at its upper extremity with spines. The jaws and tail resembled very much the same organs in *C. MacAndrei*, but the body of the animal was too much decomposed to allow me to see them sufficiently accurately to be able to figure them.

Godeheu de Riville, in his paper on the Luminosity of the Sea, published in 1760 in the third vol. of the 'Mémoires pour les Savans Etrangers,' describes a small Entomostracan which must belong to this genus. Sailing along the coast of Malabar, when in 8° 47′ N. lat., and in 73° E. longitude of Paris, the sea was observed to be unusually and most brilliantly luminous. Having had his attention previously directed to this interesting phænomenon, Riville determined to ascertain the cause. The water all round the vessel and to a considerable distance from it was white as snow, and in the wake of the ship innumerable star-like bodies of a still brighter lustre sparkled on the surface of the agitated surf. He had some water drawn up from alongside, and he then observed numerous bright sparkling spots in the bucket in which it was contained. Pouring it out upon a piece of linen, numbers of small bodies still giving out light were observed adhering to the surface of the cloth. They were alive, and resembled, he says, "those small insects called in France *Puces d'eau.*" The body of the animal was contained in a little shell which was transparent, and resembled in form an almond cleft on one side and notched at the superior part. The animal, besides several organs which he shortly describes, had, he remarks, "a large foot armed with a toothed talon resembling that of the *puce d'eau,* and destined for the same uses, being a kind of rudder which enables the insect to move about with swiftness." An officer on board made several sketches of this interesting little creature, and from these and the above description I have little doubt of its belonging to this genus*. Riville does not mention the size of his insects, but from what he says they must have been much smaller than the species above described. Amongst the very interesting drawings of Crustacea made by Mr. Adams during the voyage of the 'Samarang', there is one which appears to be another species of this genus. It was taken in the Sooloo Sea. Mr. Adams describes it as of a bluish colour, semi-opake, two lines in diameter, and very quick in its motions, darting about with great velocity and constantly revolving. The figure however is not sufficiently detailed to enable me to describe the species, and no specimens were brought home. Mr. Adams observed both of these species to be highly luminous.

British Museum, October 1847.

POSTSCRIPT.

Since the above was in type I have had an opportunity of examining another specimen of the *Cypridina Adamsi,* kindly placed in my hands by Mr. Adams. Though equally dry as the other specimens I had previously received from the same gentleman, the body of the animal was almost entire, and I was thus enabled to make out the anatomy more satisfactorily. The eyes are two in number; each placed upon a conical lengthened peduncle, which takes its origin near the base of the first pair of the pediform antennæ. From the state of the animal I could not distinctly make out the construction of the organ, but apparently it was composed of numerous crystalline lenses. The oviferous feet, placed on each side of the body and directed upwards, consist each of a long cylindrical body, club-shaped, composed of a great number of short articulations, and furnished with many stout barbed spines arising from each side. The articulations are completely circular, and with a high power can be discerned running round the body of the foot like a bell-wire (fig. 4 *a*). The spines on its edges are composed of a long basal joint, smooth for three-fourths of its entire length, and five or six very short articulations at the apex, each armed with a short awn-like seta on either side (fig. 4 *b*). The second pair of antennæ (fig. 5) are each formed of three joints. The basal is stout and fleshy, and has at its posterior extremity an appendage consisting of a semicircular plate, armed at its edge with numerous slender setæ. The second is shorter and has several long plumose hairs springing from its inferior edge, and three or four not plumose from the upper surface. The terminal joint gives off at its apex four stout setæ, and numerous others more slender from its upper edge. The first pair of jaws (fig. 6) consists each of a semicircular plate furnished on its convex margin with a great number of long beautifully plumose filaments, and has attached to one extremity two other plates, each provided with numerous very slender setæ on their edges. The second pair of jaws (fig. 7) consists each of a semicircular plate furnished on its inner margin with numerous long slender setæ disposed like the teeth of a comb. At one end it gives off a stout branch like a finger, which is terminated by seven or eight long curved spines, and at the other sends off seven or eight long stout plumose setæ. The organs represented at fig. 8 are perhaps the mandibles, but as I did not observe their exact situation in the animal, I cannot with certainty refer them to those organs. The part represented (fig. 9) is unique, but I do not know its nature or use.

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* Müller however quotes it as resembling his *Lynceus brachyurus*!

EXPLANATION OF PLATES VI. B. and VII.

Plate VI. B. *Fig.* 1. *C. MacAndrei*, highly magnified.
Fig. 2. The outer shell removed to show the animal.
Fig. 3. Anterior antenna.
Fig. 4. Natatory foot.
Fig. 5. Second pair of antennæ.
Fig. 6. Oviferous foot.
Fig. 7. Tail.
Plate VII. *Fig.* 1. *C. Adamsi*, slightly magnified.
Fig. 2. Anterior antenna.
Fig. 3. Natatory foot.
Fig. 4. Oviferous foot: *a*. portion highly magnified; *b*. one of the spines highly magnified.
Fig. 5. Second pair of antennæ.
Fig. 6. First pair of jaws.
Fig. 7. Second pair of jaws.
Fig. 8. Mandibles?
Fig. 9. ——?

III.—*Observations on the Development of the* Medusæ. By John Reid, M.D., Fellow of the Royal College of Physicians of Edinburgh, and Chandos Professor of Anatomy and Medicine in the University of St. Andrews*.

[With two Plates.]

The following observations were made upon three colonies of the larvæ of a *Medusa*. One of these was procured on the 15th of

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* These observations were laid before the Literary and Philosophical Society of St. Andrews at the Meetings of the 4th of May 1846 and the 5th of April 1847, and abstracts of them were printed in the 'Transactions' of the Society, and reprinted in Nos. 118 and 131 of the first series of this Journal.

September 1845, and the other two on the 11th of July 1846, adhering to the lower surface of stones in pools near low water mark. The stones were of a size which readily permitted them to be conveyed home, where I have kept them up to the present time. The mode I have followed in keeping these animals alive is this. The stones to which they adhere are placed in vessels of considerable size, supplied daily with water fresh from the ocean, and the animals fed once or twice weekly with small morsels of mussels, which they readily swallow. The first of the three colonies consisted of between thirty and forty individuals, and the largest was between two and three lines in length; the individuals composing the other two colonies were more numerous and of somewhat larger size.

After I had completed my examination of the structure of these animals I discovered that they had been described by Sars, first under the generic name of *Scyphistoma*, and afterwards as the larva of the *Medusa**.

Many of the larvæ increased much in size several months after I took them home, and the body of one that I measured was $\frac{1}{3}$rd of an inch in length and $\frac{1}{5}$th of an inch in diameter; another was $\frac{4}{12}$ths of an inch in length and $\frac{9}{12}$ths of an inch in circumference. As every part of their body is contractile, they can assume a great variety of forms. The more common of these are represented in Pl. V. figs. 1, 2, 3, 4 and 5. Though almost all of them are throughout of a grayish white colour, a few presented spots or patches of a purple colour, which were sometimes observed to disappear and reappear in the same individual. The tentacula are generally from twenty-two to twenty-seven in number, and when fully expanded are three or four times the length of the body. In one that I measured the body was $\frac{4}{24}$ths of an inch, and the tentacula $\frac{12}{24}$ths of an inch in length; in another the body was $\frac{2}{24}$ths, and the tentacula $\frac{8}{24}$ths of an inch in length. The mouth is very dilatable and varies much in shape, but is most commonly quadrangular. When fully expanded it forms a round aperture occupying nearly the whole of the disc (fig. 5); at other times its margins or lips are elongated and approximated so as to form a considerable quadrangular projection (fig. 2 *b*). Its more common condition perhaps is that represented in fig. 3 *a*.

The four round, equidistant and slight depressions placed between the mouth and margin of the disc are represented in fig. 2 *a*.

The body and tentacula of the larva are composed of two distinct layers, an internal and external. The internal layer chiefly consists of nuclei and nucleated cells (Pl. VI. fig. 19) of various sizes, some of them containing a large number of nuclei; while the external is chiefly composed of a structureless substance with

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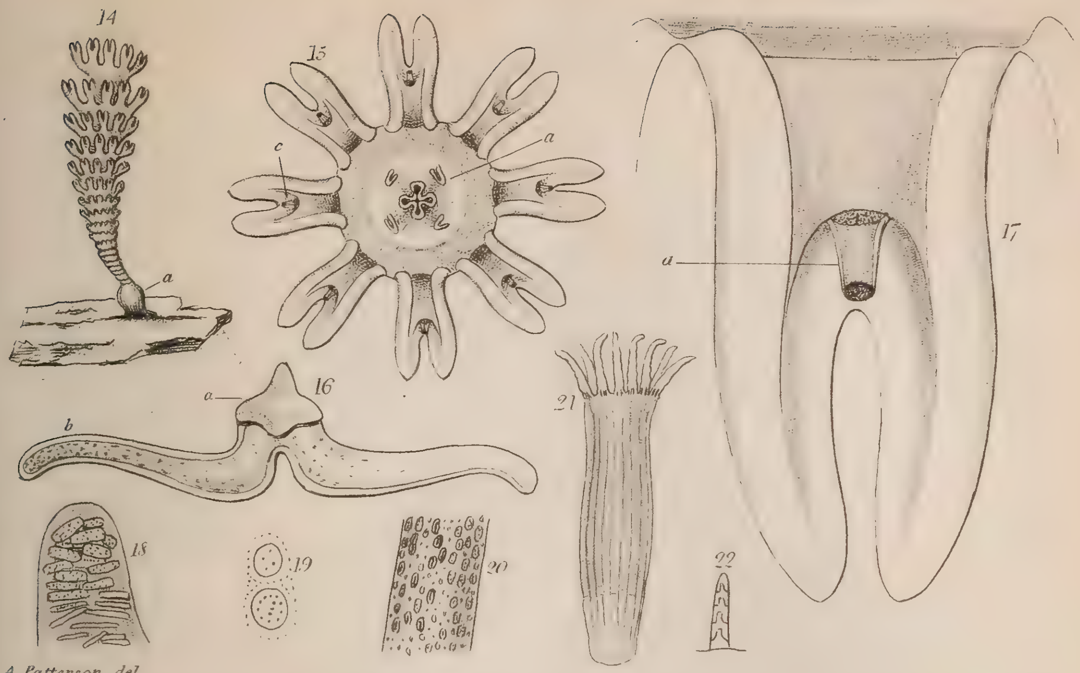
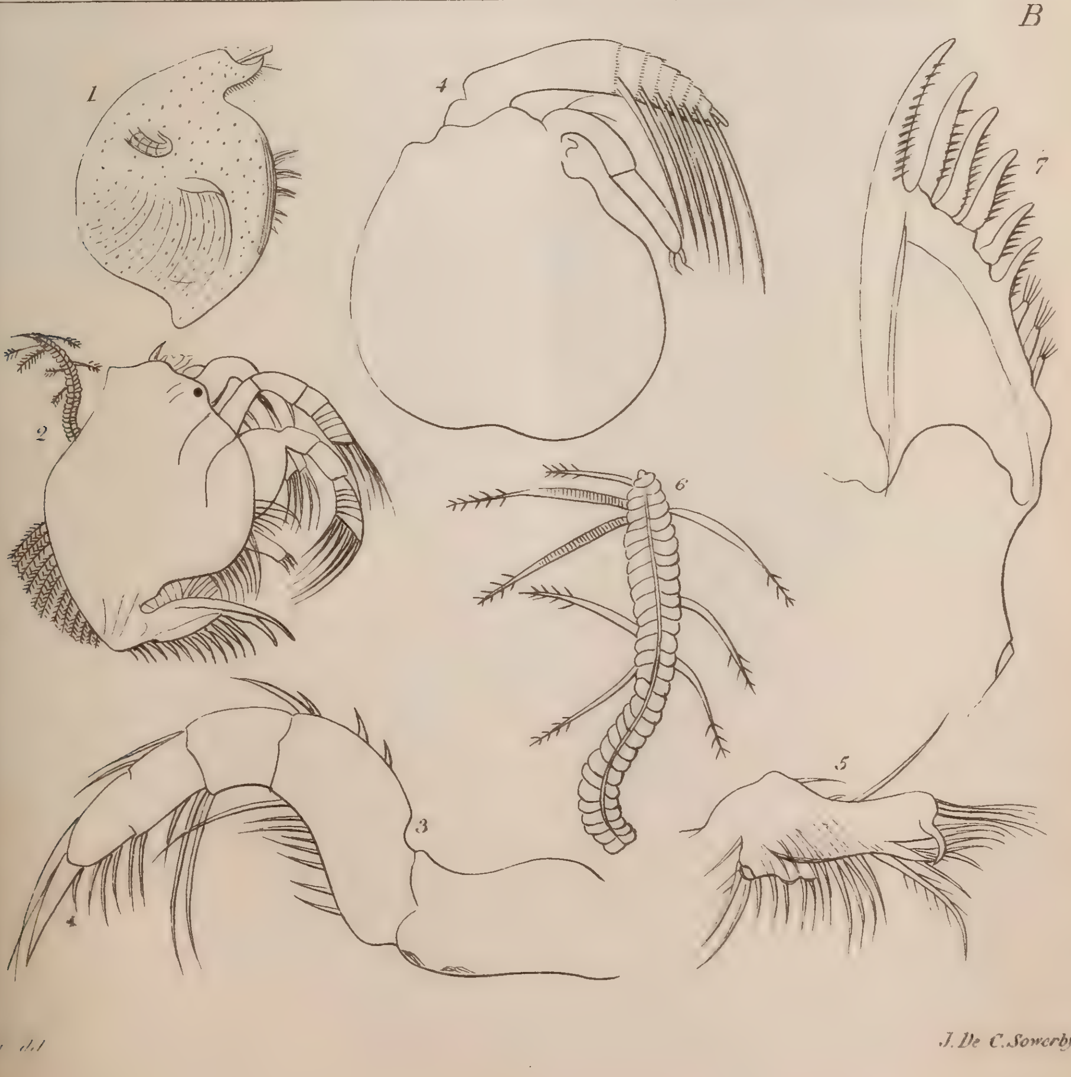
* Annales des Sciences Naturelles, tom. xvi. p. 321, 1841.



A. Patterson del.



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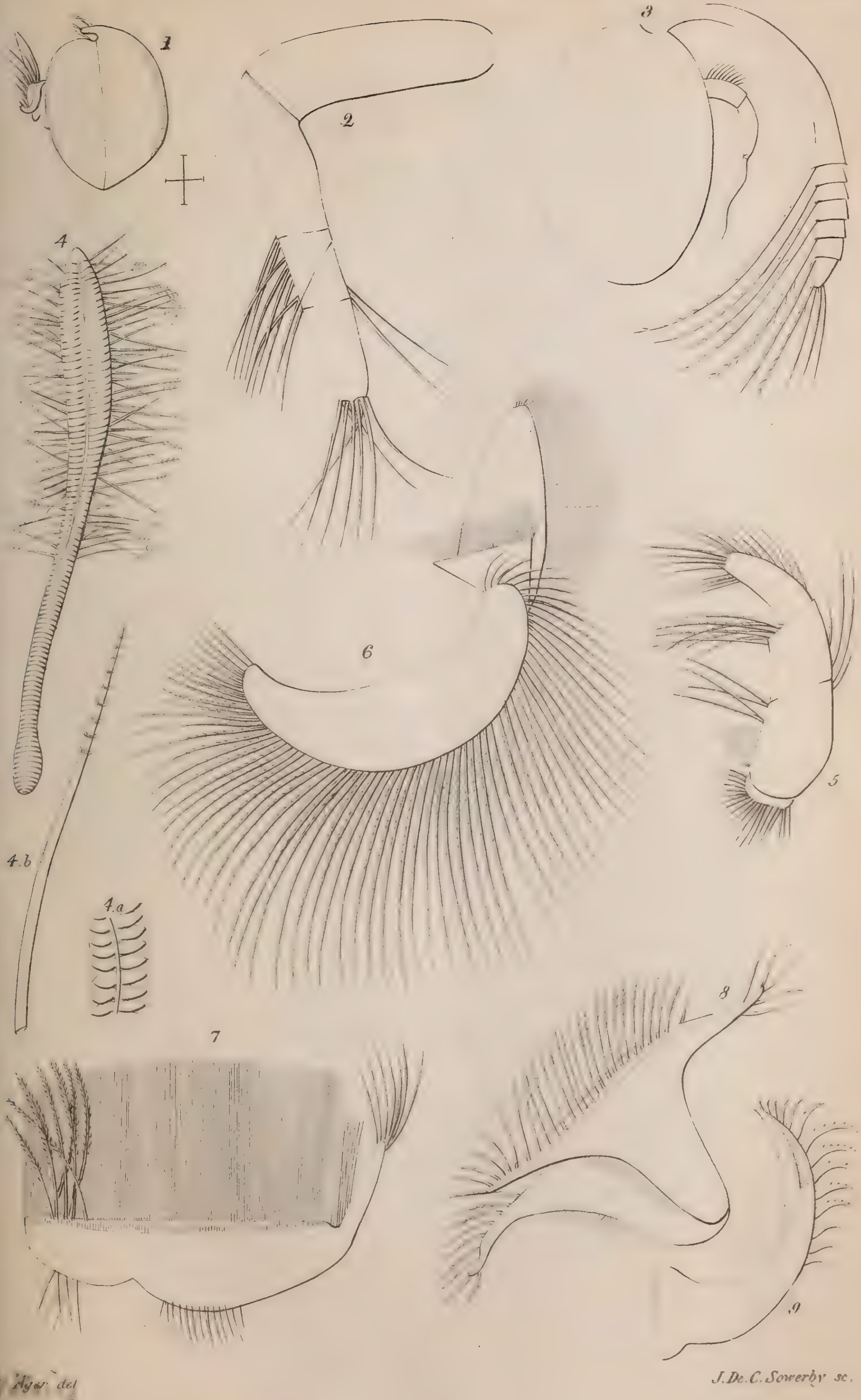

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J. De C. Sowerby sc.

XX.

III.—*Description of the* Entomostraca *of the Pleistocene Beds of Newbury, Copford, Clacton, and Grays.* By T. Rupert Jones, Esq.

[With a Plate.]

The history of the recent British Entomostraca has lately been completed by Dr. Baird, and the Entomostraca of the "Carboniferous," "Permian," and "Cretaceous" formations of Britain have been described by Mr. M'Coy and myself: some progress has thereby been made towards the completion of a general history of the British Entomostraca, recent and fossil. Still however a great proportion of the fossil species remain undescribed, and the following account of the pleistocene Entomostraca is intended as a contribution towards the filling up of this deficiency.

Family Cyprididæ, *Baird* (Brit. Entom. p. 14).

Entomostracous crustaceans, minute, aquatic; *animal* inclosed in a bivalved carapace.

1. Genus Cypris, *Müller*.

Gen. Char. *Animal* swimming, provided with two pairs of plumed antennæ, and two pairs of feet. Inhabiting fresh-water.

1. *Cypris setigera,* nobis. Length $\frac{1}{23}$ inch. Pl. III. fig. 3 *a, b, c.*

Carapace ovate, somewhat pear-shaped. *Valves* convex; elliptical on the dorsal and nearly straight on the ventral border; narrower and slightly flatter anteriorly; covered with fine spines; bordered anteriorly and posteriorly by narrow, rounded, marginal ridges. *Right valve* narrower, straighter on the dorsal, and more incurved on the ventral margin than the left valve.

Dorsal aspect acute-oval; *anterior* oval.

This species approaches *Cypris aurantia,* Jurine (Baird, Brit. Entom. p. 159. n. 15. tab. 19. fig. 13); but it differs from it in being smaller and less gibbous, and in having spines, anterior marginal ridge, and a perfectly different pattern of *lucid spots.*

Plentiful in the peat-beds of Newbury, Berks.

2. *Cypris Browniana,* nobis. Length $\frac{1}{28}$ inch. Pl. III. fig. 1 *a, b, c, d.*

Carapace short and broad, somewhat square. *Valves* convex, depressed anteriorly, smooth. *Left valve* subquadrangular, obliquely rounded anteriorly, semicircular posteriorly; slightly arched on the dorsal and ventral borders. *Right valve* smaller than the left, subreniform.

Dorsal aspect elongate-oval; *anterior* obtusely ovate.

Plentiful in the freshwater deposit at Clacton, Essex. This species is named after John Brown, Esq., F.G.S. of Stanway, to whom I am indebted for the use of an interesting series of Entomostraca collected by him from the Clacton beds.

3. *Cypris tumida,* nobis. Length $\frac{1}{35}$ inch. Pl. III. fig. 2 *a, b, c.*

Caparace tumid, rounded. *Valves* strongly convex, especially on the posterior third; rounded obliquely anteriorly, semicircular posteriorly; strongly arched on the dorsal, and nearly straight on the ventral border.

Dorsal aspect suboblong, elongate-obtuse-ovate.

Rather rare: at Grays, Essex.

For this and the other species from Grays and Copford I am indebted to Mr. Pickering of Thames Street.

4. *Cypris gibba,* Ramdohr. Mag. Gesellsch. Naturf. Berlin, t. iii. fig. 13–17. Length $\frac{1}{25}$ inch. Pl. III. fig. 4 *a, b, c.*

Syn. *Cypris biplicata,* Koch, Deutsch. Crust. H. 21. t. 16, 1838.

Carapace oblong. *Valves* rather depressed; impressed with closely-set, circular punctations; rounded anteriorly and posteriorly; incurved at the middle of the ventral border; deeply marked across the centre by an irregular sulcus or two parallel sulci, strongest towards the dorsal border. The extremities of the recent carapace are fringed with fine hairs. *Right valve* somewhat smaller than the left.

Dorsal aspect elongate-oval or lanceolate; *anterior* ovate.

Occurs in the deposits of Clacton and Grays. Common in a recent state: Regent's Park, Notting Hill, Charing.—T. R. J.

2. Genus Candona, *Baird.*

Gen. Char. Animal creeping, provided with two pairs of antennæ, *upper pair* plumed, *lower pair* hooked; and two pair of feet. Inhabiting fresh and brackish water.

1. *Candona lucens,* Baird, Brit. Entom. p. 160. n. 1. tab. 19. fig. 1. Length $\frac{1}{15}$ inch. Pl. III. fig. 8 *a, b, c.*

Carapace somewhat reniform in the adult state, elliptical when young. *Valves* convex, smooth, white and shining; arched on the dorsal, sinuated on the ventral border. *Extremities* narrow, rounded; *the posterior* widest and produced obliquely downwards. The recent shell is hairy at the margins of the extremities.

Dorsal aspect elongate-acute-oval; *anterior* acute-ovate.

Common both in the recent state and in the deposits of Newbury, Copford, Clacton, and Grays.

2. *Candona reptans,* Baird, Brit. Entom. p. 160. n. 2. tab. 19. fig. 3, 3 *a*. Length $\frac{1}{8}$ inch. Pl. III. fig. 7 *a, b, c*.

Carapace oblong. *Valves* convex, glabrous, and in the recent state green, and fringed at the extremities with hairs; nearly straight on the dorsal, slightly sinuated on the ventral border; rounded posteriorly, and obliquely rounded anteriorly; *anterior extremity* slightly narrower and flatter than the posterior.

Dorsal aspect elongate-acute-oval; *anterior* suborbicular. Edwardstone

Common in the recent state. Fossil at Newbury, Clacton, and Grays: not rare.

3. *Candona torosa,* nobis. Length $\frac{1}{20}$ inch. Pl. III. fig. 6 *a, b, c, d, e*.

Carapace oblong, varying in length according to age. *Valves* convex; bearing a marginal ridge at the anterior extremity; bounded anteriorly and posteriorly; straight on the ventral and more or less arched on the dorsal border according to age, especially the right valve, which is smaller than the left and narrower posteriorly. The surface of valves is marked with closely-set pittings, coarse in the older specimens, and is raised in adult specimens into 5–7 tubercles. Young specimens in general have the surface almost even, or marked by a slight transverse sulcus near the centre and just posterior to the *lucid spots,* which indicate the position of the first-developed tubercle; 3–4 tubercles on the posterior moiety of the valve, and 1–3 smaller anteriorly become apparent afterwards. Occasionally well-developed tubercles are present even in very young specimens; and on the other hand individuals reach their full growth without being marked with more than one anterior tubercle.

The hinge is considerably developed, the hinge-margin of the right valve bearing anterior and posterior sets of "knurlings," which are received into corresponding furrows on the hinge-margin of the opposite valve.

Dorsal aspect irregular acute oval; *anterior* somewhat hexagonal.

This well-marked species occurs abundantly at Grays, and is also plentiful in a living state in the Gravesend ditches. I have to acknowledge Mr. Pickering's kindness in favouring me with the recent specimens of this interesting species.

3. Genus Cythere, *Müller*.

Gen. Char. Animal creeping; provided with two pairs of antennæ,—*upper pair* simple and setiferous, *lower pair* furnished with a long filament,—and three pairs of feet. Inhabiting fresh and salt water.

1. ? *Cythere trigonalis,* nobis. Length $\frac{1}{11}$ inch. Pl. III. fig. 5 *a, b, c.*

Carapace-valve triangular, convex, finely punctated; *extremities* obliquely rounded; *the anterior* much broader than the posterior extremity; *ventral border* nearly straight; *dorsal border* angular. *Hinge-margin* oblique and slightly developed. *Right valve* narrower than the left. *Dorsal aspect* acute-oval.

A unique specimen of this interesting form occurs at Clacton, and is identical with an undescribed recent species from Pegwell Bay, except that the latter has teeth or blunt spines on the anterior and posterior margins, as is usual with the genus *Cythere.*

A smooth form, var. *lævis,* which occurs plentifully at Grays, differs from the Clacton specimen merely in the want of pittings.

Cythere trigonalis approaches distantly in form some old specimens of *Cypris tristriata,* and it more nearly resembles *Cythere Hilseana* of the cretaceous formation, but differs materially from both in the structure of its hinge.

P.S. In a paper lately read before the Geological Society, Mr. W. J. Hamilton notices the occurrence of an extensive deposit of freshwater marl in the Cambridgeshire Fens, in which, in company with still existing land and freshwater mollusks, the following Entomostraca occur:

Cypris minuta, *Baird.**
——– setigera, *nobis.*
——– gibba, *Ramdohr.*
Candona lucens, *Baird.*
———– reptans, *Baird.*

EXPLANATION OF PLATE III.

Fig. 1. *Cypris Browniana* + 16: *a,* left valve; *b,* right valve; *c,* dorsal profile of both valves; *d,* anterior profile of both valves.

Fig. 2. *Cypris tumida* + 16: *a,* left valve; *b,* dorsal profile of both valves; *c,* anterior profile of both valves.

Fig. 3. *Cypris setigera* + 16: *a,* right valve; *b,* dorsal profile of both valves; *c,* anterior profile of both valves.

Fig. 4. *Cypris gibba* + 16: *a,* left valve; *b,* dorsal profile of both valves; *c,* anterior profile of both valves.

Fig. 5. *Cythere trigonalis* + 8: *a,* left valve; *b,* dorsal profile of both valves; *c,* anterior profile of both valves.

Fig. 6. *Candona torosa* + 16: *a,* left valve, young; *b,* left valve, adult; *c,* right valve, adult; *d,* dorsal profile of both valves, adult; *e,* anterior profile of both valves, adult.

Fig. 7. *Candona reptans* + 8: *a,* left valve; *b,* dorsal profile of both valves; *c,* anterior profile of both valves.

Fig. 8. *Candona lucens* + 8: *a,* left valve; *b,* dorsal profile of both valves; *c,* anterior profile of both valves.

N.B. The carapace-valves and the dorsal profiles are figured with the anterior extremity upwards; and in the anterior profiles the dorsal margins are uppermost.

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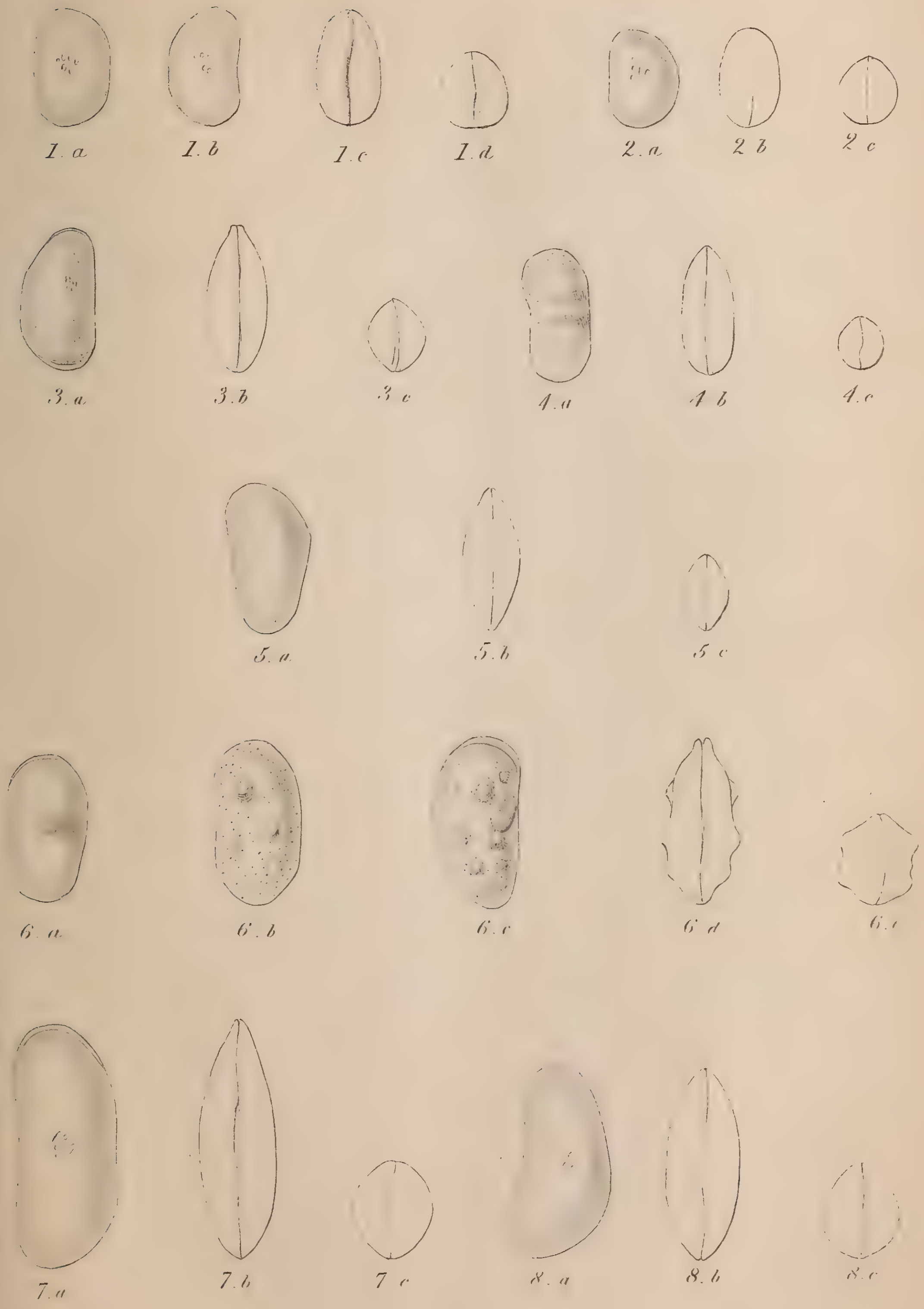
* Brit. Entom. p. 155. n. 6. tab. 18. figs. 7, 8.

Ann. & Mag. Nat. Hist. S. 2. Vol. 6. Pl. III.

Pleistocene Entomostraca.



J. De C. S. del.

[*From the* ANNALS AND MAGAZINE OF NATURAL HISTORY
for January, 1853.]

DESCRIPTION OF A NEW GENUS
OF
CALANIDÆ.

BY JOHN LUBBOCK, ESQ.

[With a Plate.]

Genus LABIDOCERA. (λαβὶς, *forceps,* and κεραία, *antenna.*)

Rostrum furcatum; *antenna antica* maris *dextra* geniculans, tumida, articulis quarto et quinto magna serrata lamella instructis. *Oculi* superiores duo, magni, distantes. Oculi inferiores nulli. *Cephalothorax* 7-articulatus. *Maxillipedes externi,* grandes, setis longis setulosis. *Pes posticus maris dexter,* crassus, prehensilis.

Rostrum forked; superior right male antenna prehensile, swollen, the ninth and tenth joints furnished each with a large serrated plate. Eyes two, large, distant. Cephalothorax 7-jointed. External maxillipeds large, bearing long setose hairs. Right male thoracic leg, of the fifth pair, swollen, prehensile.

I have after much hesitation described this as a new genus, on account of the number and position of the eyes, and of the very remarkable structure of the ninth and tenth joints of the right male antenna.

From *Calanus,* Dana; *Scribella,* Dana; *Acartia,* Dana; *Euchæta,* Dana, and *Undina,* Dana, it differs in having the right male antenna prehensile.

From *Calanus, Scribella, Euchæta, Undina, Caudace,* Dana; *Cyclopsina,* Dana, and *Catopia,* Dana, in having two large distant eyes.

From *Acartia,* in having the right fifth leg in the male prehensile, and two instead of four eyes.

From *Pontella,* Dana, in having two large distant eyes instead of three.

From *Cetochilus,* M.-Ed., in having the right fifth leg in the male prehensile.

From *Anomalocera,* Tem., in having two eyes in both sexes.

And from all these genera in the structure of the superior right male antenna.

Cephalothorax: 7-jointed; the first three large and nearly equal, the next four gradually diminished in size.

Eyes: large, distant, one on each side of the head; alike in both sexes.

Between the two anterior antennæ is a rounded projection analogous to that which in the neighbouring genera contains the inferior eye; in *Labidocera,* however, the eye itself is absent, at least Mr. Darwin, who examined the mouth when they were fresh, did not observe it, and had it been coloured like the other two he could not have overlooked it; and besides, though I could easily dissect out the lenses of the superior eyes, I could not find one here*.

Anterior antennæ: female and left male simple, 24-jointed, like those of *Pontella,* &c.

The right male antenna consists of 13 joints. The 1st, 2nd, and 3rd joints, counting from the apex, are simple, long and narrow; the first terminated by a few short hairs, the second and third bearing each a long hair at the apex. The fourth long, narrow, and produced forward into a dentated plate; closely applied to, and rather longer than, the joint itself. The fifth short and produced backwards in form of a strong plate, as long as the sixth joint, turned outwards, and knobbed at the end and strongly serrated, which forms with the corresponding plate of the fourth joint a most beautiful prehensile apparatus (Pl. I. fig. 3, 3 *a* open, 3 *b* closed), whose action will be presently described. The sixth joint is as long as the plate of the fifth, narrow at the apex, and gradually increasing in size to the base. The outer margin is straight, the inner rather curved and bearing two pairs of hairs; the 7th, 8th, and 9th are short and broad, their breadth exceeding their length; the 10th is longer and narrower; the 11th, 12th, and 13th the same length but broader; the 7th, 8th, 9th, 10th, 11th, and 12th with a row of hairs externally.

Rising at the exterior basal angle of the ninth joint a strong voluntary muscle passes through the 8th, 7th, 6th, and is inserted into the apex of the fifth joint; the action of which is to draw back the apex of the fifth joint towards the sixth (fig. 3 *b*), which throws the serrated plate forwards and towards the plate of the tenth joint.

This antenna is coloured and extended in front of the animal, while the right is colourless and doubled down close to the body.

Second pair of antennæ (fig. 2) consist of three joints, the apical rather swollen at the end and bearing a tuft of hairs; the basal supporting a simple appendage not quite so long as the second joint of the other branch, and also terminated by a tuft of hairs.

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* The colouring matter of the eyes of Entomostracans must differ chemically from that of the *Zoeæ, Gammari,* &c., for in Mr. Darwin's specimens (which have been in spirits of wine nearly twenty years) the colour in the former was entirely destroyed, while that of the latter was unaltered.

Mandibles (fig. 4). Strong, six-toothed, the two external teeth the largest, and each terminated by a small spine, the sixth longer than the rest and more like a stout spine; bearing a large palpus, which is provided at its apex with two lobes, nearly equal, and each terminated by a tuft of long, setose hairs.

Internal maxillipeds (fig. 5) consist of a basal joint bearing two lobes, each with several strong setose hairs; opposite the lobes is another tuft of longer, also setose hairs, between which and the lobes is attached an oval plate, deeply notched at the extremity, and likewise bearing setose hairs at the apex.

Second pair of maxillipeds (fig. 6). A small triangular lobe with a few long setose hairs at the extremity, and a long, simple, six-jointed palpus, also terminated by a tuft of hairs.

External maxillipeds (fig. 7). Large, bearing many long, stout, slightly curved hairs setose internally, and showing traces of being three-jointed. The extremity of the seven external hairs is curiously crenated.

Thoracic legs. The first four pair (fig. 8) consist of a two-jointed basal part, where arise a long three-jointed and a shorter two-jointed branch, both clothed internally and at the apex with long setose hairs, and the outer branch also bearing several short, stout spines externally, and showing traces of other joints.

Fifth pair of thoracic legs. Female. Small, simple, consisting of a basal joint, bearing two, a large and a smaller, simple slightly curved pointed joints; the outer and larger one bearing one or two small, short spines (fig. 10).

Male (fig. 9). The right leg in the male is large and prehensile; the first joint somewhat pentagonal, broad; the second simple, cylindrical; the third very much swollen at the apex, containing a very powerful muscle, bearing at its external basal angle a large spine, which, with the claw articulated at the corresponding apical angle, forms a very powerful prehensile apparatus. The left simpler, smaller leg (fig. 9 *a*) is three-jointed and gradually tapers to the apex, where there are two, a longer and a shorter, strong, slightly bent spines. Internally at its apex it bears a tuft of very fine short hairs. Attached to the basal joint is a two-jointed appendage, not so long as the leg itself, and whose second joint is very curiously ringed (the rings however, at least at the base, do not go quite across), and evidently extensible, as in some specimens it was much longer and thinner than in others. In it (fig. 9 *b*) was a wide vessel containing a brown pulpy substance, but I could not trace it quite to the apex (though as far as the second ring), nor see any opening, which, considering the minuteness of the object, is not perhaps to be wondered at. Mr. Darwin and Dr. Baird* both regard this organ, on account of its structure and position, as the penis, in support of which it may be remarked, that Mr. Darwin observed that this pair of legs was frequently moved and retained irritability longer than any other part of the body, which appears to indicate them as the seat of some important function, which can hardly be any other than that we have assigned to them, more especially as the female organs of generation in other animals are most retentive of irritability. The penis in all Cirrhipeds is also ringed.

Neither Dana nor Milne-Edwards have noticed any organ similar to this in any of the neighbouring genera; so it is probable that in them it is not so much developed.

Abdomen (figs. 1 & 11) is four-jointed in the male and two-jointed in the female, and, like that of *Pontella*, &c., gives off two caudal lamellæ, each provided at the end with a few long plumose hairs.

The anus is, I believe, situated between the lamellæ, as I have traced the intestine thus far, and Mr. Darwin noticed its peristaltic motion in the abdomen.

Labidocera Darwinii.

There being as yet only one species in this family no specific description need be given.

Colour blue-green, sometimes with brown spots. $\frac{1}{10}$th inch in length.

Hab. Atlantic Ocean, lat. 38° south, in the open sea off the coast of Patagonia.

I received the specimens from Mr. Darwin, to whom I am indebted for great kindness and advice, and who has kindly permitted me to call it after him.

EXPLANATION OF PLATE I.

Fig. 1. *Labidocera Darwinii.* Male.
Fig. 2. Second pair of antennæ.
Fig. 3. Anterior antenna. 3 *a.* Prehensile apparatus open. 3 *b.* Ditto closed.
Fig. 4. Mandible.
Fig. 5. First pair of maxillipeds.
Fig. 6. Second ditto.
Fig. 7. Third ditto.
Fig. 8. Thoracic leg: 1st, 2nd, 3rd, and 4th pair.
Fig. 9. Posterior thoracic legs. Male. 9 *a.* Left leg more magnified to show the penis. 9 *b.* Apical joint of penis.
Fig. 10. Posterior thoracic legs. Female.
Fig. 11. Abdomen. Female.

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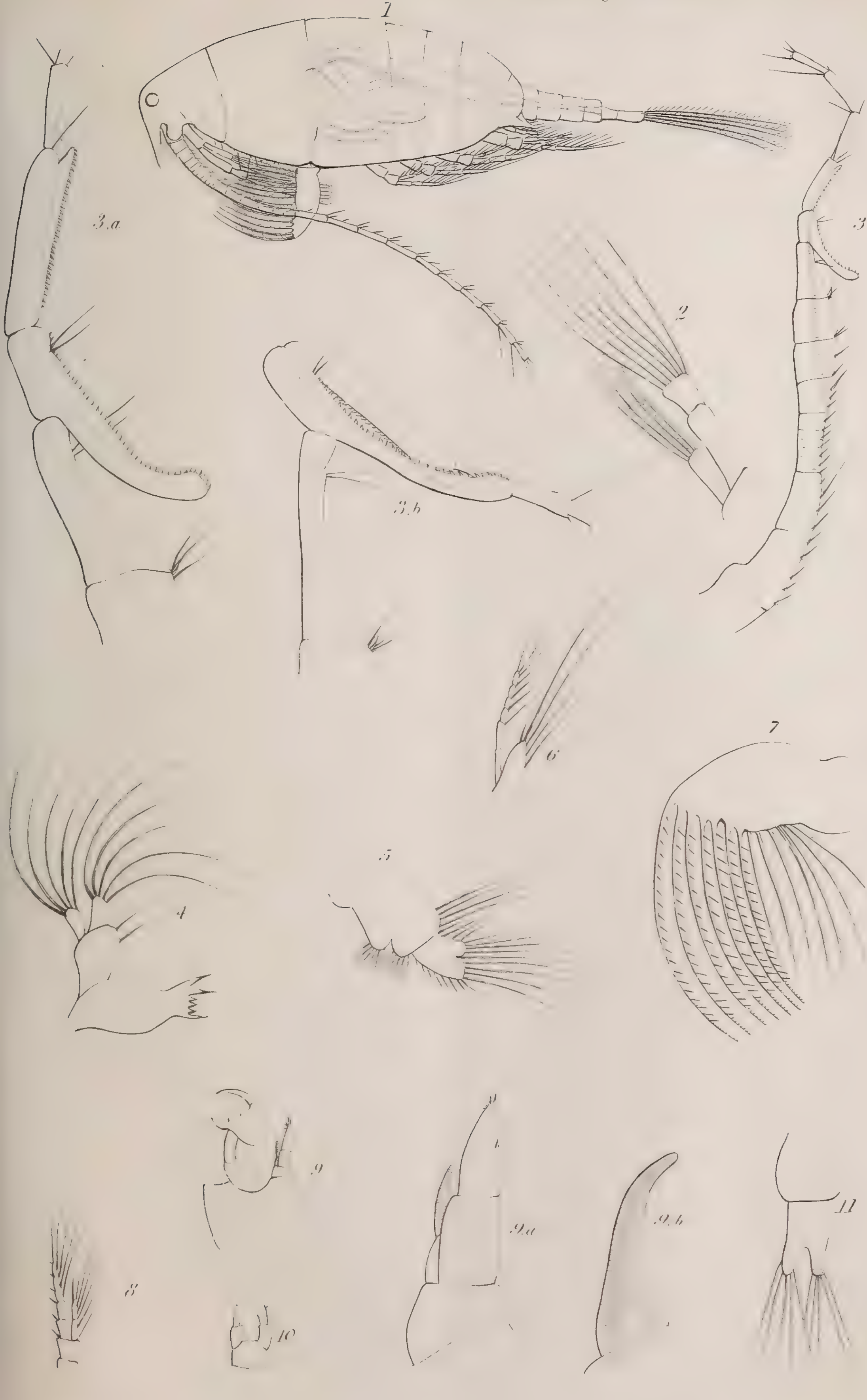
* Both of whom have very kindly given me the benefit of their advice in drawing up this paper.



J. Lubbock delin.
J. De C. Sowerby sc.

XXXI

[*From the* ANNALS AND MAGAZINE OF NATURAL HISTORY *for March*, 1853.]

ON TWO NEW SUBGENERA
OF
CALANIDÆ.

By JOHN LUBBOCK, Esq., F.Z.S.

[With a Plate.]

AMONG Mr. Darwin's Crustacea, I discovered a few specimens of a remarkable Entomostracan nearly allied to *Labidocera Darwinii*, but differing considerably from it in the structure of the right antenna of the male, of the fifth pair of legs, and of the abdomen of the female; and lately, in the collection of the College of Surgeons, through the kindness of Prof. Owen and Prof. Quekett, I found a single male specimen of a third very distinct species belonging to the same group, in which the right antenna of the male is more anomalous than in any form yet described. These two new species will, I believe, eventually form the type of two new genera; for the present, however, it will perhaps be more convenient to consider them subgenera of *Labidocera*. For this purpose it will be necessary slightly to alter its generic character, which will stand as follows:—

LABIDOCERA.

Rostrum furcatum; *antenna antica* maris dextra geniculans tumida, lamellis lobulisve dentatis instructa. *Oculi superiores* duo. *Oculi inferiores* nulli? *Cephalothorax* 7-articulatus. *Pes posticus* maris dexter, prehensilis. *Abdomen* maris 4-articulatum, fœminæ 2-articulatum.

And will contain three subgenera:—

there are others smaller. Along the inner margin of the third hair is a row of finer hairs placed close together, besides the usual spines which are larger and much further apart.

Fifth pair of thoracic legs. Female (fig. 6). Very small, $\frac{1}{82}$ inch. The basal part consists of two joints, the apical produced externally into a lobe which represents the inner branch of the preceding legs, and bearing externally a simple segment, analogous to the external branch, which bears at the apex three spines closely applied to the organ. Attached to the second segment is a large plumose hair which extends to the apex of the terminal segment.

Male (figs. 4 & 5). The left leg is simple, four-jointed, as large as the right, curved towards it, and larger and stronger than the corresponding leg of *L. Darwinii*. The terminal segment bears on its internal margin two lobes; close to the apical lobe is a simple hair and a delicate pointed appendage. At the basal lobe there is a short hair and two very delicate tufts. Length $\frac{1}{27}$ inch. I could find nothing similar to the penis ? of *L. Darwinii*.

The right leg is prehensile, and also consists of four joints. The first is short, the second longer, the third large, muscular, and the external basal angle produced into a large claw; the fourth segment is long, slender, and curved, and forms with the preceding joint a powerful prehensile apparatus. This finger bears on the internal margin two slight protuberances and a small hair, and near where it rises, there is on the third segment a rounded knob. When the prehensile apparatus closes, this knob is received into a corresponding depression at the base of the apical segment, by which contrivance the points of the fixed and of the moveable claw would be forced into opposition, and the strength of the organ greatly increased.

Abdomen. Male. Four-jointed, the terminal joint bearing two lamellæ which rise from a common base, and are terminated by five long setose hairs.

It is exactly like that of *Pontella*, *Labidocera*, &c.

Female (fig. 7). Small, two-jointed; the two joints are of equal size, and the second bears two small round lobes, each with five setose hairs, which represent the lamellæ in the male.

The abdomen of some females differs slightly from the above description; the joint is not apparent; on the left side is an unsymmetrical projection, of a horny appearance, and the whole base has an irregular outline and a reddish chestnut colour, almost as if a glutinous matter had been poured over it and had hardened there. On this there is a cylindrical appendage, the nature of which is as yet doubtful. It is large, elongated, of nearly equal thickness throughout, but slightly swollen at the apex, and terminated by a short narrow neck, attached to the middle of the dorsal surface of the first abdominal joint. It is hollow and empty with soft elastic sides, and $\frac{1}{15}$th of an inch long.

In all the specimens I have seen, this organ has formed a right angle with the longer axis of the body, as I have drawn it; but this position would be such an obstacle to rapid motion, that I consider it owing only to spasmodic contraction of the animal when put in spirits of wine. It would probably during life be extended in the axis of the body, as in *Caligidæ,* and would partly supply the place of the abdomen, and act as a rudder.

This organ might be considered either as the external ovary, or as a spermatic tube similar to that which Siebold has described in *Diaptomus Castor**. In support of the latter hypothesis it may be adduced, that the organ in question differs from all other known external ovaries belonging to this family, in being attached to the back instead of the under surface of the body, and in being long and cylindrical instead of pear-shaped. In shape it agrees exactly with Siebold's drawing of the spermatic tube in *Diaptomus,* and at its base is a quantity of hard, reddish, irregular matter, which forms a small lump on the left side, and is firmly attached to the body of the animal. This strongly reminds one of the glutinous substance by means of which the spermatic tube is attached to *Diaptomus,* and which is driven out by the expulsive matter. If we consider it as a true external ovary, how can we account for this deposit?

It is also worthy of notice, that in Templeton's paper on *Anomalocera* there is figured (fig. 22) and described a "biarticulate spatulate appendage, which is confined to the left side of the female, and attached to the first joint beneath; it is probably a collapsed ovary."

Might not this be a spermatic tube? In Gaimard's 'Voyage en Scandinavie,' a female *Calanus hyperboreus* is represented with an appendage, evidently a spermatophore, attached below to the penultimate thoracic joint. It is true that this organ is ringed, and differs very considerably both from Siebold's figures of the spermatic tube in *Diaptomus,*—from the above-mentioned doubtful appendage of *Anomalocera,*—and from that of the present species; still it establishes the fact, that this mode of fecundation is very generally pursued in this curious family. In all these cases, however, it is attached below.

On the other hand, we may observe, that its position, though curious, is not entirely anomalous, for *Notodelphys Ascidicola,*

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* Annales des Sciences Naturelles, 2nd series, tom. xiv.; and Baird's British Entomostraca, p. 223.

Allman, has its external ovary on the back, and in the *Daphnidæ* the receptacle for the eggs, which corresponds in function, is always situated dorsally, whereas the spermatic tube is attached on the under surface close to the vulva, as would appear evident; for if it was not so, how could the spermatozoa reach the eggs? It may perhaps be said, that the glutinous matter forms a tube down the side of the body, and in that way opens close to the vulva; but this does not appear to me probable, for in that case the animal would lose its equilibrium; and besides, I could see no excrescence of that sort; and if it were present, I could hardly have overlooked it. Unless then we suppose that the vulva is situated on the back, its position seems rather in favour of its being an external ovary. From the function of the spermatic tube, we should expect to find it only when the eggs were well developed, but I could not see them in any one of the three females provided with this organ which I have examined; it is true, however, that in the figure of the female *C. hyperboreus* above referred to, which is provided with a spermatophore, no external ovary is represented. Its size also seems almost too large to admit of its having been developed in the generative organs of the male.

The shape of the organ in question, though certainly very different from that of the external ovary in the rest of the family, is however the same as that which prevails in all the *Caligidæ*. In *Caligus* the ovaries are attached to the body by their internal angles, and in *Iva* by the centre; but if we consider that of the latter genus as homologous with the two of the former coalesced, this difference will be removed.

The chief obstacle to this view is the absence of eggs; but Dr. Baird, in his volume on the 'British Entomostraca,' p. 49, describing the process of laying in *Chirocephalus*, says, "When the proper time arrives, the mother deposits these eggs loose in the water, the ovary opening at the point and the eggs being thrown out by a sudden jerk;" and it seems to me possible, that, either in the violent struggles which follow when any Entomostracan is placed in spirits of wine, the eggs may have been expelled, or that they may have been so in the course of nature shortly before they were captured.

I have endeavoured impartially to state both sides of the question, but the paucity of specimens unfortunately makes it impossible to prove either, so that it must be left to some future observer to decide the question*.

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* Mr. Darwin and Dr. Baird, who have both examined my specimens very carefully, agree with what I have said above. If it had not been for their assistance my task would have been much more difficult.

Labidocera (*Ivella*) *Patagoniensis.*

There being only one species as yet in the subgenus, no specific description need be given.

Colour ?

Length, from the rostrum to the end of the abdomen, in both male and female, $\frac{1}{5}$ inch.

Taken by Mr. Darwin with *Labidocera Darwinii* in the open sea, lat. 38° south, off the coast of Patagonia.

This species appears rare; at least there were only a few specimens, amongst a great number of *L. Darwinii* and other small Crustaceans, caught in the towing-net.

Labidocera (*Iva*) *magna.*

Rostrum short (Pl. X. fig. 8).

First pair of antennæ. Male.

The left is about $\frac{3}{10}$ inch in length, simple, 24-jointed, and clothed with hair, which is all on the external side, except some fine down on the basal joints, and one simple hair at the apex of the penultimate and antepenultimate segments. On the apex of the eleventh segment is a strong spine.

The right antenna (fig. 9) is very different; it consists of a basal portion composed of many almost coalesced segments; then a part very much swollen, and bearing a very large prehensile spine, which is transversely ringed; the two segments which succeed this swollen part are longer, and each bears a plate, one with about twenty, the other about sixty teeth; the following segment (which probably consists normally of three) has two plates, each with about forty teeth. These two plates rise one on each side of the flat external surface of the segment, the one occupying two-thirds at the middle, the other two-thirds at the apex of the segment. There are in the three last plates two unequal rows, each provided with the above-mentioned number of teeth, and the smaller row situated at the base of the larger.

Second pair of antennæ. Have been described above.

Eyes. What has been said of the eyes of *L. Patagoniensis* applies equally well to those of the present species.

Mandibles $\frac{1}{33}$ of an inch in length; bearing, like *L. Patagoniensis,* seven teeth, and a spine serrated externally. The first six teeth are strong, large and subequal, decreasing in size from the outside; the first is $\frac{1}{200}$ inch in length, the seventh is smaller. There are rows of hairs as in the preceding species.

First pair of maxillipeds $\frac{1}{37}$ inch.

Second pair of maxillipeds. Length $\frac{1}{80}$ inch; of the palpus $\frac{1}{48}$.

Third pair of maxillipeds. Length $\frac{1}{30}$ inch. The hairs of this organ have been described above.

Fifth pair of legs (figs. 10 & 11).

Male. The left leg consists of four joints. The first two short, the third longer, and the fourth again shorter; the apex is swollen and covered with delicate papillæ. Externally near the base the terminal segment bears a strong hair, and near the middle a small one. Internally it has a row of hairs near the base, and a large very delicate tuft. This tuft appears to be very constant; it exists in all three species of *Labidocera,* and a similar one is figured in Templeton's paper on *Anomalocera.* Length $\frac{1}{20}$ inch.

The right leg also consists of four segments, and is very similar to that of *L. Patagoniensis* and *Darwinii.* The third joint has the basal spine rather more curved, and bears also a triangular membranous lobe with the angles rounded off and contracted at the base into a sort of neck; at its base is a small hair. The apical joint also has a triangular projection with a broad base, and bears four small hairs.

This fine species being the only one in the subgenus, no specific description need be given.

Its length is $\frac{1}{4}$ inch.

Colour?

It comes from the South Pacific Ocean, and seems to be rare; at least I have only one specimen, which is a male; the female is therefore as yet unknown.

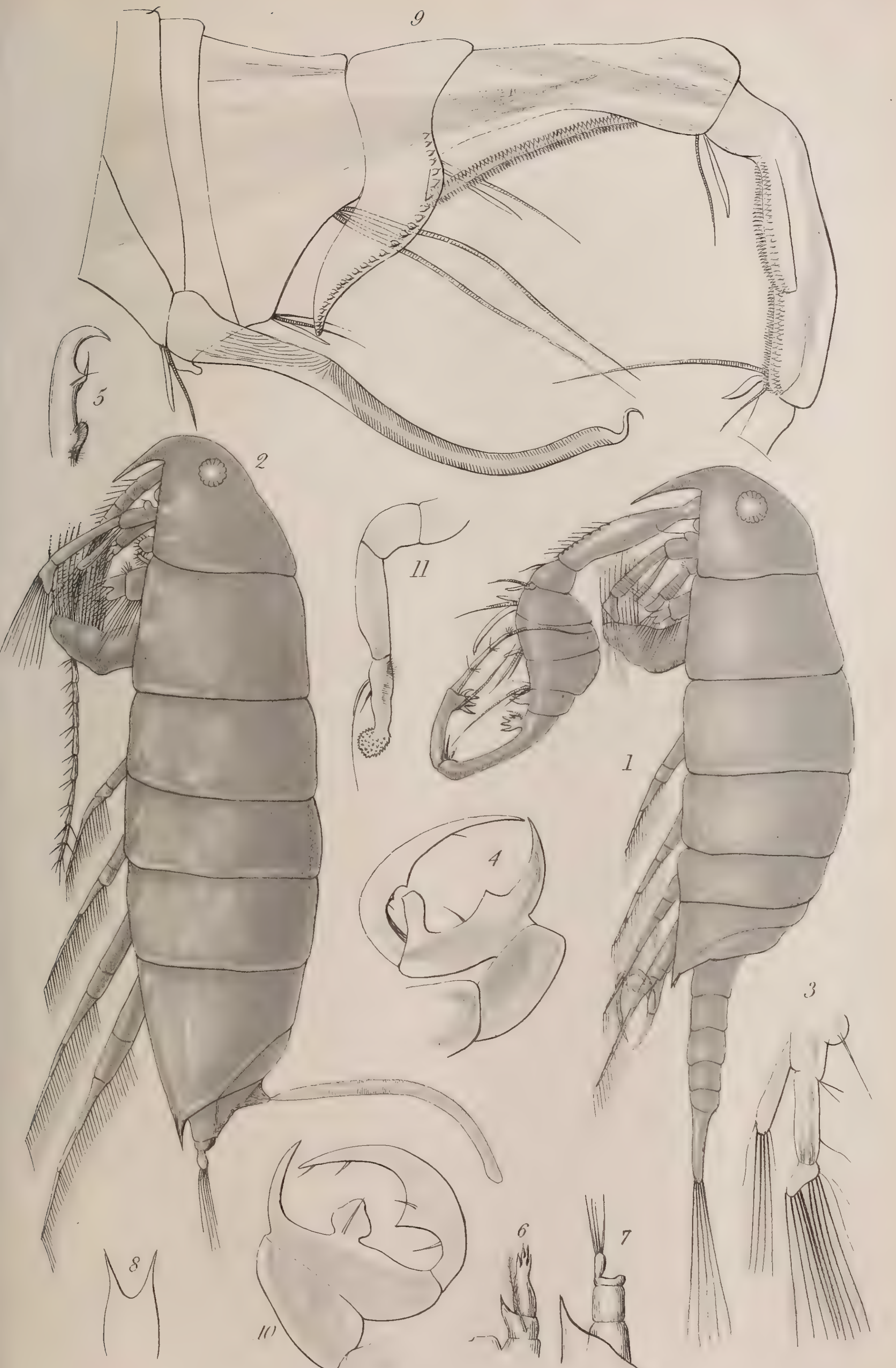
My single specimen of *L. magna* (as well as more than one of *L. Patagoniensis*) is attacked by a disease, showing itself as white spots which spread over the back. This appears to be similar to that which so commonly destroys *Chirocephalus diaphanus.* The back of the common *Daphnia Pulex* also is often rendered quite white by a substance formed under the shell, and which consists of innumerable very minute, triangular or pear-shaped bodies, each about $\frac{1}{6000}$ inch long, and $\frac{1}{8000}$ broad at the thicker end.

EXPLANATION OF PLATE X.

Fig. 1. *Labidocera* (*Ivella*) *Patagoniensis.* Male.
Fig. 2. Ditto ditto. Female.
Fig. 3. Ditto Second pair of antennæ.
Fig. 4. Fifth pair of legs. Male. Right.
Fig. 5. Ditto ditto. Terminal joint of the left.
Fig. 6. Fifth pair of legs. Female.
Fig. 7. Abdomen. Female. Without the appendage.
Fig. 8. *Labidocera* (*Iva*) *magna.* Rostrum.
Fig. 9. Prehensile apparatus of the right anterior antenna of the male, much magnified.
Fig. 10. The right leg of the fifth pair in the male.
Fig. 11. The left ditto ditto.

The drawings were done with a camera lucida.

Ann. & Mag. Nat. Hist. S.2. Vol. 11. Pl. X.



J. Lubbock del.t J. De C. Sowerby sc.

XXXII

[*From the* Annals and Magazine of Natural History
for August 1853.]

ON
TWO NEW SPECIES
OF
CALANIDÆ,
WITH OBSERVATIONS ON THE SPERMATIC TUBES
OF
PONTELLA, DIAPTOMUS, &c.

By JOHN LUBBOCK, Esq., F.Z.S.

[With a Plate.]

When, in last March, I described the new species of *Labidocera*, which I proposed to call *L. magna*, I was only acquainted with the male, and was therefore anxious to find a female in order to complete the description of the species. This is the more necessary in the present genus, because the best specific characters are taken from the right anterior antenna of the male and the fifth pair of legs, organs which are dissimilar in the two sexes, and it is therefore evident that unless they are known in both, it would be very difficult to refer females to their respective males. Prof. Owen and Prof. Quekett, with their usual kindness, afforded me every facility, but I was unsuccessful in my search, and have never met with a second specimen. Dr. M'Donald, however, of H.M. steam-vessel Torch, has recently met with it in great numbers in the voyage from St. Vincent to Rio Janeiro, and a short description of it will be found in the Proceedings of the Royal Society for April 7, 1853. His paper is accompanied by drawings, to the beauty and general accuracy of which I can bear witness, from which it appears that the colour, as in *L. Darwinii*, is blue. *Anomalocera Patersonii*, which is the representative species in the North Atlantic, and appears to form the connecting link between *Labidocera* and *Pontella*, is also greenish blue. I think it likely that the other species are also bluish. Dr. M'Donald says, that when they were "placed in a vessel of sea-water, they rested on their antennæ on reaching the bottom, and paddled themselves about by their fore-limbs and tail." He has also an interesting observation on the superior development of the right side of the body; he "remarks that in all their movements the males exhibit a tendency to turn towards the left side, and concludes the rationale of this fact to be, that the brain on the right side being more developed at the part from which the right antenna derives its nerves, a corresponding preponderance is given to the power of the locomotive organs on that side."

Although however disappointed in my search for the females of *Labidocera magna,* I found in the same bottle two other species. The first is an aberrant species of *Pontella,* Dana, agreeing with that genus in the number of eyes, but very nearly resembling *Labidocera Darwinii* in the structure of the right male antenna, and is therefore a link between these two genera. The second, on the other hand, is the type of a new genus which I propose to call *Monops* (*μόνος, one; ὤψ, eye*). It differs from *Anomalocera* in having no superior eyes; and resembles *Labidocera magna* more than any other species that I know.

I will first give short specific descriptions of all the species at present known in which the anterior antenna is provided with dentated plates; then describe the two new species at length; and finish with a few words on the classification and geographical distribution of the group, with a comparison of all the right male antennæ.

Pontella Bairdii, n. s.

Antenna antica maris dextra duabus dentatis lamellis instructa, apicali long. $\frac{1}{66}$ unc. Spina prehensili parva, rigido crini simili. Ramo interno pedis postici maris sinistri, papilloso. Pede postico fœminæ long. $\frac{1}{40}$.

Color?

Long. cir. $\frac{1}{5}$.

Hab. Atlanticum oceanum, S. Lat. 20°, Long. 0°.

Labidocera Darwinii, Lubk.

Antenna antica maris dextra duabus dentatis lamellis instructa, apicali long. $\frac{1}{100}$. Spina prehensili parva, rigido crini simili. Ramo interno pedis postici maris sinistri, annuloso. Pede postico fœminæ long. $\frac{1}{71}$.

Cæruleo-viridis, interdum fusco maculatus.

Long. cir. $\frac{1}{6}$.

Hab. Atlanticum oceanum, S. Lat. 38°, W. Long. 65°.

Labidocera Patagoniensis, Lubk.

Antenna antica maris dextra tribus dentatis lamellis instructa. Spina prehensili magna. Pede postico maris sinistro; forti, ad apicem

acuto et corneo, ramum internum non gerente. Pede postico fœminæ parvo, ramum internum non gerente.
Long. cir. $\frac{1}{5}$.
Hab. Atlanticum oceanum, S. Lat. 38°, Long. 65° W.

Labidocera magna, Lubk.

Antenna antica maris dextra quatuor dentatis lamellis instructa. Spina prehensili maxima, annulosa. Pede postico maris sinistro, magno, ad apicem tumido, papilloso; ramo interno nullo.
Long. cir. $\frac{1}{4}$.
Hab. Atlanticum oceanum, S. Lat. 18° 40′, Long. 2° 30′ W.

Monops grandis, n. s.

Antenna antica maris dextra duabus magnis dentatis lamellis instructa. Spina prehensili magna. Pede postico maris sinistro, parvo, non ad apicem tumido, non papilloso, ramo interno nullo.
Long. cir. $\frac{1}{5}$.
Hab. Atlanticum oceanum, S. Lat. 18° 22′, Long. 2° W.

Pontella Bairdii.

I now proceed to describe *P. Bairdii,* which I have so named in honour of Dr. Baird, who has done so much to increase our knowledge of the Entomostraca of this country.

This species agrees in most points very closely with *L. Darwinii,* but differs from it in having an inferior eye, besides the two superior; it belongs therefore to *Pontella.*

The cephalothorax has only six joints, the last having coalesced with the preceding. The anterior segment agrees with that of *L. Darwinii* in not having a spine directed outwards, as is the case in *L. magna* and *Patagoniensis.* The rostrum (Pl. V. fig. 5) is strong, deeply forked, and extends downwards as far as the inferior eye. Each fork is about $\frac{1}{100}$ in length, $\frac{1}{300}$ in breadth at the base, and $\frac{1}{700}$ half way down.

The superior eyes are a good deal larger in the male than in the female. In one specimen they are bright violet, but in every other specimen the colour has been entirely removed; while the inferior eye, which is also violet, has in very many instances retained its colour.

The inferior eye is situated between the anterior antennæ, it is large, and, as remarked above, dark violet. It would be impossible to overlook it, even in the most cursory examination.

I shall refer to this point again when I consider the classification.

The anterior antennæ of the female and the left antenna of the male has on the internal side of the apex of the penultimate segment a long hair $\frac{1}{66}$ of an inch in length, and the apical and antepenultimate segments have each a corresponding one $\frac{1}{99}$ of an inch in length (fig. 6).

The right antenna of the male is formed upon the same type as that of *L. Darwinii,* from which it differs chiefly in the apical plate being longer, reaching nearly to the apex of the antepenultimate segment; and in the three apical segments being more pear-shaped, with the larger end in front. In some specimens the antenna was more swollen than in others, which perhaps may be accounted for by differences of age, or by the state of development of the spermatic tube.

The second pair of antennæ $\frac{1}{31}$ in length.

The mandibles $\frac{1}{66}$ in length, and the palpus also $\frac{1}{66}$. Each lobe of the palpus has six long plumose hairs, and the inner lobe also four smaller ones.

The first pair of maxillipeds $\frac{1}{30}$.

The second pair of maxillipeds $\frac{1}{70}$. The palpus is $\frac{1}{66}$ in length, 4-jointed and tapering towards the apex; the other species of the genus have six segments to the palpus, and the joints which have disappeared are the two apical. The basal segment has a number of spines or small teeth on the inner edge. *L. magna* agrees with the present species in having also a few spines in the same place. In the arrangement and structure of the hairs, this organ agrees almost exactly with that of *L. magna,* except that the third hair has no spines above.

The third pair of mandibles $\frac{1}{40}$.

Thoracic legs. The first four pairs are adapted for swimming, as in the rest of the family, and are all alike, except that they increase in size from the first to the fourth, which are $\frac{1}{22}$ in length. The large spines on the external margin of each leg are dentated above, and accompanied by a smaller spine on each side. All the appendages, from the second pair of antennæ to the fourth pair of thoracic legs inclusive, are very similar to those of the allied species.

The fifth and last pair is very different; its use in swimming, if any, is quite subordinate to its functions connected with the act of fecundation. In the female they are smaller and simpler than in the male, and symmetrical, while in the latter they are much more complicated, stronger, and asymmetrical, the right leg being the largest and forming a prehensile apparatus.

In the present species these legs of the female (fig. 4) are much larger than in *L. Darwinii* or *Patagoniensis,* measuring $\frac{1}{40}$ in length. They most nearly resemble those of *L. Darwinii,* from which they only differ in their larger size, and in the external branch being longer and bearing three instead of two spines at the extremity.

The left leg of the male (fig. 3) consists of four joints as in the other species, but the second segment (counting from the base) appears both in this and in the corresponding right leg to be composed of two which have coalesced. It most resembles that of *L. Darwinii,* and, like it, bears two rami. I have already remarked the curious relation which appears to exist between this branch and the prehensile spine of the right male antenna, viz. that where one is developed the other disappears, and *vice versâ.* This ringed branch is homologous with the inner ramus of the other thoracic legs, like which it is two-jointed. In the present species it is long, slender, tapering, and ringed, with the rings produced into papillæ. Like the corresponding organ of *L. Darwinii* it appears to be extensible, as the length and thickness vary in different specimens. Length $\frac{1}{40}$.

The right leg, $\frac{1}{42}$ (fig. 3), also consists of four joints, but, as in the left leg, the second (counting from the base) appears to be composed of two segments. The basal segment is attached by its external basal angle to the apex of a strong crescent-shaped process, the horns of which point inwards. The second is longer and thinner, and, as I have just noticed, appears to consist of two; it bears a strong spine at the external apical angle. The third is very strong and muscular, as in the other species of this genus; it is attached to the inner apical angle of the preceding segment. Besides the large claw at the base, which forms with the succeeding segment a prehensile apparatus, there is a smaller spine directed backwards. On the external margin, which in the ordinary position would be lowest, there are two rounded projections, of which the apical is the largest and appears to be transversely striated or furrowed. The portion which answers to the large moveable claw of the allied species is here, as in them, attached to the external apical angle of the third segment, but in the present species it gradually increases in size from the base, is produced at the apex into a large claw, which with the corresponding one of the third joint forms a prehensile apparatus, and appears to consist of three segments, of which the second and third bear a hair each, and the third a long cylindrical appendage, provided at the apex with a small spine and two hairs.

The abdomen (figs. 1 & 2) is entirely without legs. That of the male consists of four segments, terminated by two 2-jointed lamellæ, exactly as in *L. Darwinii.*

The abdomen of the female is two-jointed and swollen transversely. The right side is more swollen than the left, and bears on the back a large spine.

This appears to be the best place to mention what I have to say about the impregnation. There is a very interesting paper by Siebold in the 'Annales des Sciences Naturelles,' 1840, 2nd sér. t. xiv. p. 26, "Sur l'accouplement du *Cyclops Castor;*" and in order to make my own observations more intelligible, I shall quote a part of what he says, premising that the *Cyclops Castor* now forms the genus *Diaptomus*, and, with *Pontella*, *Cetochilus*, &c., has been separated from the old family, Cyclopidæ:—

"Ce qui passe pendant que ces animaux se tiennent ainsi embrassés est un des phénomènes les plus remarquables dans le règne animal, et dont on n'avait jamais eu une idée. Un tube cylindrique, rempli d'un liquide spermatique, s'échappe de l'ouverture sexuelle du mâle immédiatement après l'embrassement; le mâle saisit ce tube aussitôt qu'il est sorti et le colle contre le ventre de la femelle, audessous de la vulve. . . . . .

"Chacun de ces tubes spermatiques renferme trois masses bien différentes entr'elles. Une des matières contenues est blanchâtre et épaisse; elle a la propriété de ne pas se dissoudre dans l'eau, mais de s'y transformer en une masse visqueuse et solide. Cette masse ténace, coagulable dans l'eau, s'étend dans toute la longueur de la capsule. Une des deux autres matières est composée d'une foule de très petits corps ovales et bien contournés, ayant longueur de 0·0066 à 0·0070 de ligne anglaise: ils paraissent d'une forme aplatie. La troisième masse consiste dans une foule de corps ovalaires, dont les contours sont moins bien dessinés, et qui ne sont pas clairs comme ceux-ci, et sont composés de granules très-fins. Ces deux dernières masses se trouvent reparties dans la capsule d'une manière remarquable, et forment une couche très-mince placée sur la surface interne. Les corpuscules bien limités se trouvent dans la moitié supérieure de la capsule, tandis que les corpuscules granulés, bien séparés des autres, occupent la moitié inférieure; ces deux masses ne permettent donc pas que la portion ténace se trouve en contact avec la surface interne de la capsule. Enfin, le col de la capsule se trouve seulement rempli par de la substance visqueuse. . . . .

"Aussitôt qu'un tube spermatique bien développé se trouve en contact avec de l'eau, les corpuscules granulés se gonflent (probablement par l'imbibition de l'eau), et ces corpuscules qui composent la matière expulsive, perdent leur forme ovalaire et deviennent ronds. Peu à peu leur aspect granulé s'efface, ils se transforment en vésicules, qui s'enflent de plus en plus, et ils finissent par expulser la matière glutineuse qui se trouve vers le col ouvert de la capsule, et qui peut facilement s'échapper. . . .

"La matière expulsive continue de s'enfler, quand même la matière glutineuse a déjà quitté la capsule; de sorte que cette matière chasse aussi tous les zoospermes, sans laisser seulement un corpuscule ovale dans la capsule. Quand tout est sorti hormis les grandes vésicules de la matière expulsive, celle-ci devient transparent comme de l'eau, et paraît composée de grandes cellules. Or, nous savons qu'avant cette transformation la capsule était blanchâtre."

In my paper on *L. Patagoniensis* I described and figured (Pl. X. fig. 2) a cylindrical appendage, situated on the *back* of the first abdominal segment, but was obliged to leave it doubtful, whether it was a spermatic tube or an external ovary, although I inclined to the former supposition. In the present species, however, I was more fortunate; for after looking through several hundred specimens, I found a male, from which the tube was in the very act of escaping, and also four females, each of which had one attached to them. Three of these are quite empty, and evidently are homologous with the cylindrical appendage of the *L. Patagoniensis,* as they exactly agree with it in texture and general appearance, and differ only slightly in shape and in position. It is evident, therefore, that the appendage of *L. Patagoniensis* is a true spermatic tube, and is only anomalous in being attached to the back instead of underneath. The tube which was in the act of escaping from the male still retained its contents, which agree with Siebold's description. Using his nomenclature and letters of reference, *d* is the expelling matter (matière expulsive), *e* the glutinous substance (matière glutineuse), and *c* the zoosperms (zoospermes). I have already remarked that of a large number of females which I examined, four only were provided with one of these appendages; this is probably owing to their having been collected in the middle of June. Mr. Darwin's specimens of *L. Darwinii* having been caught in November, which answers to our May, would account for my never having found a fully developed spermatic tube in that species, and the only time that Dr. Baird ever met with a tube attached to *Diaptomus* was in October.

As, owing to an accident happening to the vessel in which his specimen of *Diaptomus* was contained, Dr. Baird says, he was "prevented from making any lengthened observations on it," and as I have heard of no one else who has studied the subject, I believe my observations are the first which fully confirm those of Von Siebold. The manner in which the three substances contained in the tube act in *Pontella* is probably the same as in *Diaptomus.* Jurine says, "il n'est pas rare d'en trouver avec deux, trois, quatre, même cinq tubes spermatiques collés autour de la vulve;" I, however, never met with a female, either of *P. Bairdii* or *L. Patagoniensis,* which had more than one tube. This mode of fecundation, which Siebold has truly observed, is one of the most remarkable phænomena in the animal kingdom, has now been observed in *Diaptomus Castor, Labidocera Patagoniensis, Pontella Bairdii, Calanus hyperboreus* (see the figures given in Gaimard's 'Voyage en Scandinavie'), and it probably occurs also in *L. Darwinii* and *Anomalocera grandis,* n. s., because in these species, as in the *P. Bairdii,* I have found in the posterior part of the cephalothorax, an organ which I am nearly sure is a spermatic tube in the course of formation, so that it will most likely be found to prevail throughout the whole family. The shape of the tube varied in the different specimens of the same species. Since the male orifice is situated between the second and third abdominal segments, as in *Cyclops*, it is evident that the inner branch of the left posterior leg in the male is not a true penis. The delicacy of the structure of this branch appears to indicate that it possesses the sense of touch in a high degree. I have already noticed the curious relation which appears to exist between it and the prehensile spine.

Length about $\frac{1}{5}$.

Hab. Lat. 18° 15′ S., L. 2° 30′ W. to 4° E.

From the Museum of the College of Surgeons. Collected by Sir E. Home.

Genus MONOPS.

Rostrum furcatum. *Antenna antica* maris *dextra* geniculans, tumida. *Oculi superiores* nulli. *Oculus inferior* unicus. *Pes posticus* maris *dexter* crassus prehensilis.

These characters distinguish *Monops* from all the other genera in the family, but I shall presently give my reasons for considering this form as a new genus more at length. It is true that these are the characters of *Anomalocera* as given by Templeton, but that genus has in reality four superior eyes.

I have already given the specific character, and it is therefore unnecessary to repeat it here. In general appearance this species resembles *L. magna* more than any other species which I know, for which reason I have given it an analogous trivial name.

The cephalothorax is 7-jointed; the posterior segment is very small, the three anterior large and nearly equal to one another, the other three intermediate in size and also equal to one another. The force which has developed the right anterior antenna and the right posterior leg of the male more than the left, has had the same effect on the posterior angles of the cephalothorax; that on the right side is at least twice as long as the other. In the female they are symmetrical. The spines of the anterior segment do not project outwards, and therefore are not visible from above. The rostrum (fig. 7) is very deeply divided, and the two forks are very delicate, symmetrical, and curved towards each other. Each prong is $\frac{1}{80}$ in length, at the base $\frac{1}{1000}$, at the middle $\frac{1}{6000}$, and at the apex not more than $\frac{1}{18,000}$ in diameter. Those of *L. magna*, on the other hand, are strong and short, being only $\frac{1}{160}$ in length. (See Ann. and Mag. Ser. 2. vol. x. pl. X. f. 8.)

The anterior antennæ of the female and the *left* one of the male have at the apex a very long hair $\frac{1}{50}$ in length. The corresponding hair of the penultimate segment is $\frac{1}{200}$, and of the antepenultimate $\frac{1}{250}$ (fig. 10).

The right anterior antenna of the male resembles that of *L. magna* more than that of the other species; it swells and contracts again, however, more abruptly than in that species. The prehensile spine is much smaller and not ringed. The plate belonging to the eighth segment (see the comparison of the right male antennæ in this genus) is not free at the base. The teeth are not so sharp. The eighth and ninth segments have coalesced, so that the hairs which belong to the latter appear to be situated on the former.

The sixth segment bears a very small plate with a few rather large teeth, analogous to the penultimate plate in *L. magna*. A glance at the figure will give a better idea of the general form of the organ than any description could convey.

The second pair of antennæ have thirteen long hairs at the end of the longer branch; they are $\frac{1}{33}$ of an inch in length.

The mandibles $\frac{1}{35}$. Palpus $\frac{1}{66}$. The rows of hairs which I have mentioned as present in *L. Patagoniensis* and *magna* are here much developed and form a strong brush.

First pair of maxillipeds $\frac{1}{66}$. The lobes are more divided than in the allied species. The spines on the inner edge are few in number, large, strong, curved, and clothed with short brown hairs.

Second pair of maxillipeds $\frac{1}{100}$. Palpus $\frac{1}{100}$. There are, as in *L. Patagoniensis*, seven hairs on the organ itself; the external (nearest to the palpus) small, setose on both sides; the next only half as long as the first. The next two very long, with inconspicuous hairs on the lower side. The fifth short, setose on each side, but chiefly below, the next only setose below. The internal setose on each side, but chiefly below. The last three hairs are about the same size, and half as long as the preceding. The palpus consists of four segments only, the basal and apical bearing at the apex two, the rest one hair each, all setose below.

Third pair of maxillipeds $\frac{1}{41}$. There are six of the smaller hairs plumose on each side. The larger hairs are beautifully crenate at the apex for about $\frac{1}{3}$rd of their length. The secondary spines of all the basal portion have disappeared.

Fifth pair of legs. Male (fig. 8). The left leg is much smaller than the right, and has no inner branch. The second segment has a spine externally at the apex. The third is small and bears the two tufts of hairs, and the fourth is very small, and bears at the apex a little tapering delicate lobe, which may, perhaps, be the rudiment of another segment, $\frac{1}{80}$ of an inch.

The right leg (fig. 8) also consists of four segments; the third, which in some species is so much swollen, is small, its office being probably in part transferred to the strong prehensile antenna. The fourth segment is small, and the spine of the third is very large and pointed, so that at first sight it might be mistaken for the fourth segment. The presence of two hairs on the smaller spine unmistakeably denote it to be the real homologue of the apical segment; $\frac{1}{66}$ in length when not extended.

In the *female* (fig. 9) they are $\frac{1}{38}$ in length. The inner branch bifid at the apex; the outer much-curved, also bifid at the apex, with a large spine on the inner and two very small ones on the outer side.

Abdomen. Female (fig. 11). Two-jointed, asymmetrical, the right side of the basal joint bearing a large slightly tapering lobe, about half as long as the succeeding joint.

The abdomen of the male (fig. 12) is similar to that of the other species of the genus, except that on all my specimens there is a very short cylindrical appendage attached underneath to the third segment on the right side. A hemispherical portion at the end is very dark violet, covered with numerous small spines (fig. 13 *a*) and surrounded by a narrow light yellow border (*b*), on which they are rather larger and more scattered. There are a few hairs on the violet part. The end, therefore, resembles a hemispherical file, but I cannot offer the slightest suggestion as to its probable use. Mr. Darwin and Prof. Quekett have kindly examined it for me. The females have no such appendage.

Length about $\frac{1}{5}$.

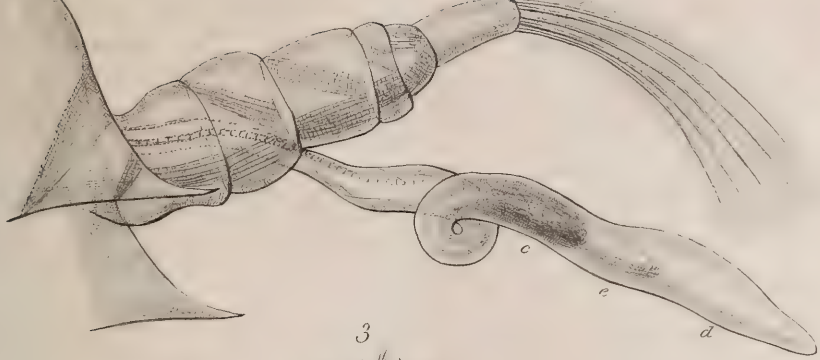
Hab. Lat. 18° 15′ S., Long. 2° 30′ W. to 4° E.

From the Museum of the College of Surgeons. Collected by Sir E. Home.

EXPLANATION OF PLATE V.

Fig. 1. *Pontella Bairdii.* Abdomen. Male. *d.* Expelling matter. *e.* Glutinous matter. *c.* Zoosperms.
Fig. 2. Ditto. Abdomen of female, seen from above. *a.* The empty spermatic tube.
Fig. 3. Fifth pair of legs. Male.
Fig. 4. One of ditto. Female.
Fig. 5. Rostrum.
Fig. 6. Four apical segments of the normal anterior antenna.
Fig. 7. *Monops grandis.* Rostrum.
Fig. 8. Fifth pair of legs. Male.
Fig. 9. One of ditto. Female.
Fig. 10. Four apical segments of normal anterior antenna.
Fig. 11. Abdomen. Female. Seen from above.
Fig. 12. Ditto. Male. Seen from the side and below.
Fig. 13. A small piece of the dark part of the abdominal appendage of ditto.

1



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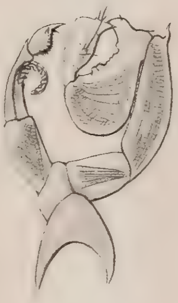

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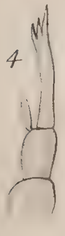

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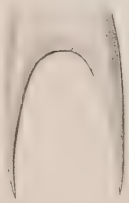

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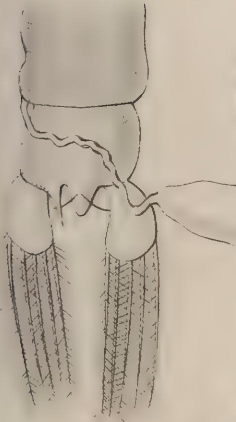

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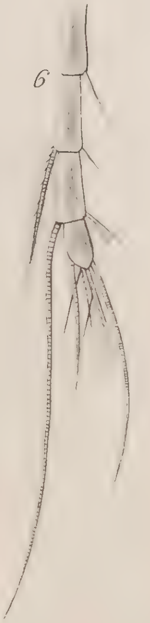

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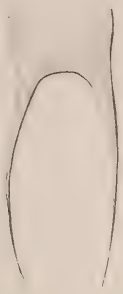

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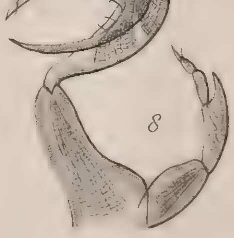

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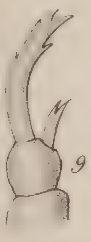

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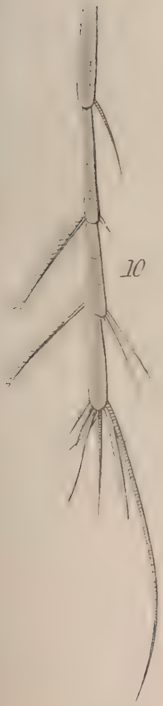

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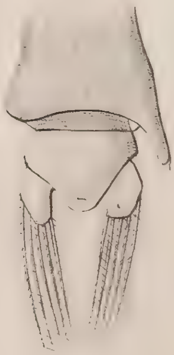

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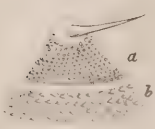

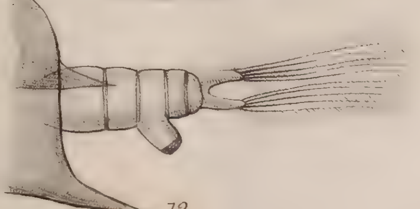

12

J. Lubbock del.

J. De C. Sowerby sc.

Dear Sir!

I take the liberty of sending You a copy of a paper on ſome small freshwater Crustacea of Southern Africa, which perhaps may have ſome interest to You. It appears that there is a great uniformity in the fresh-water Entomostraca inhabiting widely distant regions, just as there is in freshwater shells. I know Your labours in Carcinology from the Annals and the Zoology of the Samarang, but I very much want Your Liſt of the Cruſtacea in B. M. and would therefore be greatly obliged

to You for a Copy, which
Baron Düben will forward to You.

I am occupied at preſent with
ſome intereſting Cypridinæ, one
or two of which come very near to
the tertiary or even cretaceous forms
described by Bosquet and Reuss.

I am
Sir
Yours moſt truly
S. Lovén.

Stockholm $\frac{28}{11}$ 54.

Gust. von Düben

100 Strand

Mr. Charles Tottie. Conſul General
for Sweden & Norway

Bishopsgate Street. No 2 Croſby square

Kongl Vet-Akad. Handl. 1845

XXXIII

Pub. 1847

Fyra nya arter af Sötvattens-Crustacéer från södra Afrika,

beskrifna af

S. LOVÉN.

Till Akademien inlemnadt den 11 Febr. 1846.

Tab. III—VI.

De underrättelser vi hittills ega om främmande verldsdelars Branchiopoder och Entomostraceer äro ganska få och ofullständiga, synnerligen i jemförelse med dem vi hafva ur Crustaceernas högre ordningar. Också äro de förra, ej blott i vårt klimat, utan, som det vill synas, äfven under söderns luftstreck, i allmänhet så små och obetydliga, att de lätt undfalla den mindre uppmärksamme forskaren.

De hittills kända exotiska arterna af sötvattens-Branchiopoder äro snart uppräknade. De äro: Apus Guildingii Thomps., Vestindien, A. caudatus Say, Florida, Limnadia mauritiana Guér., Mauritius, L. coriacea Hald., Nord-America, Cyzicus Bravaisii Aud., Algier, Estheria Dahalacensis Ruepp., Nubien, "Branchipus stagnalis Lamk." Gould, Massachusetts. Men i denna korta förteckning se vi likväl ingen för Europa främmande slägtform, ty Estheria och Cyzicus äro synonyma, och den art, som Audouin först erhöll från Bona är Isaura cycladoides Joly, hvilken äfven lefver i södra

Frankrike. Och om vi härtill lägga, att Daphnia och Cypris äro återfunna i Nordamerika, och Cyclops på Mauritius, och att bland högre Crustacéer slägtet Astacus visar sig i alla verldsdelar, Thelphusa åtminstone i nästan hela gamla verlden, så synes det, att sötvattnens Crustaceer, liksom deras Mollusker, äro utbredda öfver jordytan med en enformighet, som blir särdeles märkbar när den jemföres med den omvexlande mångfald af dessa djurklasser, som hafvet öfverallt erbjuder.

De fyra arter jag här skall beskrifva, förete i detta hänseende ingen betydande afvikelse. De äro en Cyzicus, ganska lik C. Bravaisii och Dahalacensis, en Limnetis, ett nytt slägte liknande Limnadia, en Branchipus som nära slutar sig till sina hittills kända samslägtingar, och en Broteas ett nytt genus af Cyclopernas familj, som föga afviker från Cyclopsina. Dessa äro alla af Herr J. Wahlberg fångade i Natal-landet, lat. s. 26½°, long. ö. 29°, i några gölar med klart vatten nära den vanliga vägen från Port Natal till Makkalis bergs saltpanna, mellan Krokodil- (Åâli) och Ap-floden (Tjoane).

CYZICUS Aud.

Audouin, Ann. de la soc. entomologique, VI, 1837, Bulletin p. x. (Febr. 1837). — Estheria Rueppel, Museum Senkenbergianum II, 119 (1837). — Isaura Joly, Annales des sciences naturelles, seconde série, XVII, 293.

C. australis n. sp.

Tab. III.

C. rostro producto, spinigero; pedum paribus 21, setis antennarum exteriorum 10—11-articulatis, cauda aculeis circa 13 inæqualibus armata. Long. 3,45 millim., altit. 2,25.

Descr. maris. Caput (fig. 1 a, fig. 2) rostratum, securiforme, deflexum, extra testam vix prominens, postice carinato-scutatum, supra oculos gibbum, antice compressum, laminaceum, angulo acuto terminatum spina armato. — Oculi medii, reniformes, approximati. — Antennæ interiores (primi paris) (fig. 1., b) graciles, sigmoideæ, rostri lateribus insertæ, e pedunculo brevi, et articulis numerosis antice papillis setosis præditis. Antennæ exteriores (fig. 1., c) validæ, sub margine scuti medio capiti insertæ, pedunculo præditæ crasso circ. 13-articulato, art. basali majore, reliquis brevissimis, et setis terminatæ binis, pedunculum superantibus, postice longius setigeris, antica breviore, ex articulis decem, posteriore ex articulis undecim majoribus. — Truncus compressus, triangularis. — Thorax a capite sulco discretus, dein gibbus et annulos præbens nonnullos parum distinctos, tum vero in testam productus bivalvem, (fig. 1, d., fig. 3), compressam, oblongam, natibus præditam prominulis, striisque incrementi octo, imbricatis, dense pilosis, margine piloso. — Annuli pediferi 21 (22?), quorum circiter 16 in dorso distincti, (fig. 1., e, fig. 4), spinisque armati uncinnatis quinis, in annulo 6 et 7 majoribus, media semper excellente. — Pedes (fig. 5, 6, 7) laminacei, duabus constitutæ partibus, interna et externa. Illa articulis quatuor composita, quorum primus (1) basalis, brevissimus, appendice auctus hamato a, piloso, apice cirrhifero; secundus (2) in lobos duos l. tres subdivisus (b, c) laminaceos, margine longe ciliatos. Tertius (3) in pedibus binis anticis copulatoriis (fig. 5, 6) major, subquadratus, angulo interno inferiore in capitulum productus setosum (d), cui inseritur appendix digitiformis brevissima (e); in reliquis pedibus (fig. 7) hic articulus minor, capitulo (d) e majore parte constitutus, longe setoso, et appendice digitiformi (e) longa, styliformi aucto. Articulus quartus (4) in pedibus branchialibus (fig. 7) gracilis, simplex, lanceolatus, laminaceus, margine longe setosus, in pedibus copulatoriis (fig. 5, 6) vero validior, teres, ex articulo basali brevi, crasso, et ramis binis (f) hamatis l. curvis apice brevi-setosis. Pars pedis externa e lamina longa, triangulari (g), medio sinuata, superius acuminata, inferne obtusa, margine longe setosa; inter quam et articulum basalem internum processus teres (h), erectus, digitiformis. — Cauda (fig. 1 f., fig. 4) brevis, oblique truncata, bifida, aculeis inæqualibus 13—14 utrinque armata, superne cirris binis prædita, inferne in spinam recurvam producta, addita utrinque subtus appendice mobili, uncinnata, longiore.

Hab. in paludibus terræ Caffrorum Natalensium, unde specimina duo retulit J. Wahlberg.

Tab. III, fig. 1, Cyzicum australem repræsentat, detracta valva sinistra — fig. 2, caput, antice; — fig. 3 valvam sinistram; — fig. 4 caudam; — fig. 5 pedem primum ♂; — fig. 6 articulos infimos pedis secundi ♂; — fig. 7 pedem quartum.

Limnetis n. g.

Limnadiæ et Cyzico affine. Antennæ internæ biarticulatæ; cauda brevis, truncata, appendicibus mobilibus facie inferiore destituta.

L. Wahlbergii n. sp.

Tab. IV.

Descr. feminæ. Caput (fig. 2, 3, a, fig. 6) validum reliqui corporis $\frac{5}{6}$ æquans, deflexum, extra testam prominens, scuto tectum magno ad medium verticali, tum reflexo, postice compresso, subcarinato, lateribus sinuato, sub medio fornicato, antice expanso, dilatato, alato. — Oculi pone medium positi, pellucentes, bini, reniformes, approximati, inter quos sulcus scuti incipit (fig. 3 b), profundus ad finem anticam usque productus, sensim latior. Ante oculos utrinque area oblonga (fig. 3, 4, c) paullum impressa, pilis obsita, sub qua organum cernitur (fig. 2, 4, d, fig. 5) internum, opacum, niveum, cellulis magnis, nucleatis circumdatum, cujus usum et structuram penitiorem speciminum raritas extricare vetat. — Labrum superius (fig. 6, 7, e) magnum, postice deflexum, subcarinatum, compressum, rostrato-acuminatum. — Antennæ interiores (primi paris) (fig. 6, 7, f.) minutæ, ex articulis duobus, quorum secundus clavatus, breviter setosus. — Antennæ externæ (secundi paris) (fig. 6, 7, g) validæ, ex articulis sex, basali crasso, lato, secundo-qvarto brevissimis, inermibus, quinto æque longo ac lato, ultimo paullum longiore; setis terminatæ binis ex articulis 16—17 postice longe plumosis. — Mandibulæ (fig. 6, 7, 8, h) robustæ, superne angulo scuti articulatæ, parte inferiore inflatæ, inflexæ, acie cristis circ. 20-dentata (fig. 8, 9). — Maxillæ binæ (fig. 6, 7, 8, i, fig. 10) minutæ, biarticulatæ, articulo ultimo lato, margine interno recto, setis plumosis armato. — Labrum inferius (fig. 8 k) sulco præditum aculeis tecto. — Truncus robustus, subtriangularis, dorso arcuato. — Thorax a capite sutura discretus profunda, robustus, annulis constitutus parum numerosis, quorum anteriores, non distinguendi, in testam magnam expansi (fig. 1, 2, 3, 11), bivalvem, tumidam, ovatam, antice obtusam, in dorso per spatium dimidiam longitudinem vix æquans canaliculato-impressam (l), strato duplici constitutam, interno membranaceo, e cute thoracis dorsali nato, et externo corneo, lævissimo, nitido, nec nisi juxta depressionem dorsalem strias præbente. Inter quæ strata massa cellulosa branchialis, medio canales fovens concentricos quatuor (fig. 11 m). Musculi adductores valvarum (n), antici, validi. — Articuli pediferi duodecim, breves. — Pedes (fig. 12—15) versus caudam sensim decrescentes, eo ut primus ultimo quintuplo major, duabus constituti partibus, interna et externa. Pars interna in omnibus habet articulos quatuor (1—4) in primoribus satis dissimiles; primum (1), basalem, lobo auctum adscendente (a), libero, obovato, apice cirro prædito, margine externo setoso; secundum (2) in lobos rotundatos divisum duos (b, c) duplici serie setosos, setis plumosis; tertium (3) stylis binis præditum (d, e) æqualibus, posterius setigeris, setis externis longioribus raripilosis, internis brevioribus versus apicem pectinatis (fig. 16); quartum (4) his similem, styliformem (f, fig. 17). In pedibus posterioribus (fig. 14, 15) magis magisque rotundatis, laminaceis, articuli magis magisque inter se similes, rotundati, lobiformes. Pars pedis externa lamina prædita branchiali, in pedibus primoribus (fig. 12, 13), superne (g) elongata, lanceolata, acinaciformi, margine setis prædita, versus caudam sensim decrescente, in pede decimo (fig. 14), rotundata, in duodecimo (fig. 15) evanida; inferne (g′) in processum descendentem continuata, distincte articulatum, setigerum, in pedibus primoribus majorem, recurvum, versus caudam sensim diminutum, sed persistentem. Inter quam laminam et partem pedis internam inseritur appendix adscendens (h) digitiformis teres arrecta, in pede primo lamina brevior, in sequentibus eandem æquans, cum ea a sexto pede sensim diminuta, in nono et decimo (fig. 14) iterum major, crassior, recurva, in undecimo et duodecimo suppressa. — Cauda (fig. 18) brevissima, conica, bifida, superne cirris prædita binis, postice brevi-mucronata, lateribus ciliata. — Long. 3 millim. Alt. 2,3 millim.

Habitat cum præcedente. Vidi specimina tria.

Tab. IV, fig. 1 Limnetin Wahlbergii repræsentat magnit. acuta, a latere; — fig. 2 candem detracta valva sinistra; — fig. 3 eandem a dorso, omissis antennis pedibusque; — fig. 4 frontis partem cum oculis; — fig. 5, organum internum, incertum; — fig. 6 caput a latere sinistro; — fig. 7 capitis faciem inferiorem; — fig. 8 mandibulas; — fig. 9 mandibulæ aciem; — fig. 10 maxillam; — fig. 11 valvam dextram; — fig. 12 pedem primum; — fig. 13 pedem sextum; — fig. 14 pedem decimum; — fig. 15 pedem ultimum; — fig. 16, 17 spinas pedum; — fig. 18 caudam.

BRANCHIPUS. Schoeff.

B. Cafer n. sp.

Tab. V.

B. thorace inermi, lamina pedum superiore externa majore, integra; *mas:* fronte in rostrum lunatum producta, antennis primariis longis flexuosis, ad basin intus appendice lacinulata, brevi. Long. 15 millim.

Descriptio maris. Caput (fig. 2, 3, 4, 5) oblongum, annulis tribus compositum, quorum primus (a) transversus, antice rostro angusto (d), deflexo auctus apice lunato-bimucronato, antennas portat primarias (e) in hoc sexu validissimas, triarticulatas, longas, flexuosas, quarum articulus basalis ad basin interne appendice brevi (fig. 4, f) lanceolata, lacinulata præditus, et apice extus cirro longo simplici; articulus tertius bifidus, ramo interno cirriformi, flexuoso, externo lato furcato. — Annulus secundus capitis (b) antennas gerit secundarias (g, fig. 6), laterales, distantes, graciles, primorum articulum basalem vix superantes, apice mucronatas et bisetosas; oculum simplicem imparem (h), in vertice situm, minutum, sessilem, pigmenti subcutanei macula subquadrata distinctum, et oculos compositos binos (i), pedunculatos, laterales, solitæ structuræ. — Labrum superius (fig. 7, k, fig. 8) ex eodem annulo ortum, magnum, prominens, recurvum, medio compressum, postice arcuato-truncatum, et appendice auctum linguiformi recurva. — Mandibulæ (fig. 7, l, fig. 9) robustæ, annuli margini posteriori affixa, acie e cristis tenerrimis, creberrimis denticulata. — Annulus capitis tertius (fig. 2, c) brevis transversus, superne fere divisus, aream scil. præbens trigonam, dein utrinque in pleuram productus brevem rotundatam. Sub hoc annulo pedum maxillarium duo paria, quorum primores (fig. 7, m, fig. 10) basi lobis binis aucti (palpo? flagello?), biarticulati, inflati, apice setis longis arcuatis, uniseriatis, bis spiniferis prædití; posteriores (fig. 7, n, fig. 11) minuti, inflati, basi antice setis tribus crassis, brevibus, plumosis prædíti, et apice unica longiore. — Thorax ex annulis pediferis undecim. Pedes ad medium ejus magnitudine aucti, dein decrescentes, duabus constructi partibus, interna et externa (fig. 12—13). Interna articulos præbet quatuor (1—4), basalem (1) brevissimum, muscularem, secundum (2) et tertium (3) membranaceos, illum bilobum (a, b), lobo superiore longe majore, margine longe-pilosum (fig. 14), tertium basi intus lacinias tres minutas (fig. 15) dentiformes pilosas gerentem, inferne late reniformem, margine spinosum (fig. 16), extus medio emarginatum. Articulus quartus (4) præcedentis margini externo insertus, in pedibus primoribus (fig. 12) medio, in posterioribus (fig. 13) superne, late lanceolatus, margine setosus, versus caudam sensim longior. Pars externa pedis ex appendicibus vesicularibus duabus (c, d) formata, superiore rotundata, foliacea, inferiore tereti, pendula, in pedibus posterioribus majore, inflata. — Abdomen ex annulis novem, quorum medii breviores, octavus longior, nonus brevissimus laminisque auctus binis lanceolatis, ciliatis (fig. 17). Genitalia externa mascula (fig. 18), in annulo abdominis primo, inferius producto, sunt cirri bini longi, graciles, curvati, ex articulo basali brevi inflato, interne processu recurvo, postice serrato munito, secundo longiore, mutico; tertio brevi basi interne inflato, quarto longissimo extus dentium serie continua serrato, intus spinis armato, apice breviter rostrato, bispinoso.

Femina differt capite (fig. 19) annulis distinctis duobus (ab et c) formato, primo suppresso, ita ut antennæ primariæ proxime ante secundarias insertæ, breves, crassæ (fig. 7, e), subclavatæ, apice mucronatæ. Saccus ovigerus (fig. 20) ex annulis duobus primis abdominis ortus, medio latiusculus, postice sensim constrictus et abrupte recurvus, caligæ formam imitans, ova continet rosea et ad basin utrinque (a) corpus album, globulis glomeratis repletum, ductu adscendente cum partibus genitalibus internis connexum, an sperma, a mare dipositum?

Habitat cum præcedentibus.

Tab. V, fig. 1. Branchipod. cafrum repræs. ♀; — fig. 2 capitis ♂ faciem superiorem; — fig. 3, a latere sinistro; — fig. 4 a fronte; — fig. 5 a latere sinistro omissa antenna; — fig. 6 antennæ secundariæ apicem; — fig. 7 capitis ♀ faciem inferiorem; — fig. 8 labrum a latere; — fig. 9 mandibulam; — fig. 10 maxillam primam; — fig. 11 max. secundam; — fig. 12 pedem primum; — fig. 13 ped. medium; — fig. 14—16 spinas pedum; — fig. 17 caudam; — fig. 18 genitalia externa mascula; — fig. 19 capitis ♀ faciem superiorem; — fig. 20 saccum ovorm ♀.

Broteas n. g.

Cyclopinæ M. Edw. et Euchetæ Phil affine. Annulis thoracis quinque; antennis primariis multiarticulatis; secundariis biramibus; pedibus natatoriis octo, bifidis, ramo externo 3-, interno 2-articulato, pedibus quinti paris dissimilibus, pluriarticulatis, pedibus maxillaribus tertiis longissimis apice falciferis; abdomine in mare annulis sex, in femina tribus.

B. falcifer n. sp.

Tab. VI.

Descriptio. Corpus gracile, subcylindricum. — Cephalothorax ex annulis quinque, cephalico impressione transversa bipartito, fronte declivi, subtriangulari. — Antennæ primi paris in femina (fig. 1) inter se similes, longæ, ex articulis 27 passim setiferis, quorum basales 10 breviores; in mare (fig. 2) antenna dextra copulatoria forma diversa (fig. 3), ex articulis circ. 24, in tres partes fere divisa: basalem (a), cujus articuli circ. 15 inæquales, passim setigeri; mediam (b) incrassatam, ex articulis quinis, quorum secundus et tertius medio appendice pulvinata, hamata (fig. 4, a), quartus et quintus appendice squamiformi (b, c), striata, præditi; apicalem (fig. 3, c) ex articulis quatuor, gracilibus, elongatis, primo arcuato, præcedenti per gynglymum inserto, et squama, quali in illo, armato, secundo elongato, recto, in medio spinifero, ultimis minutis setosis. — — Antennæ secundi paris (fig. 6, a, fig. 7) triarticulatæ, ultimo dilatato, setoso, flabelliformi, primo postice ramum (palpum?) gerente graciliorem, ex articulis setigeris septem, quorum secundus et ultimus elongati, primo breviore, mediis quatuor brevissimis. — Inter antennam primariam et secundariam utrinque foramen minutum (fig. 6, b) rotundatum; annon organorum auditus pars externa? — Labrum (fig. 6 c, fig. 8, 9 a, 10 a) magnum, transversum arcubus suffultum utrinque binis, plagisque pilosis ornatum symmetricis, lamellis supra tectum pluribus, ut videntur, immobilibus; postice medio impressum et papillarum serie præditum. — Mandibulæ (fig. 6 d, fig. 11) robustæ, acie dentibus sex, superiore remoto majore, addita inferne appendice minuta, spinosa; palpi (fig. 6 e.) validi birames, ramo interno bi-, externo tri-articulato. Mandibulæ, quoad partem anteriorem inflexam in interstitio positæ (fig. 9 c.) profundo inter labrum superius et inferius (?), cujus locum occupare videntur processus bini conici (fig. 6 f, fig. 9 b, 10 b, 12) antrorsum vergentes, apice obtusi et externe papilla aucti, intus seriebus pilorum pluribus ornati, suprema scopacea, antice ad basin stylo brevi armati. — Pedum maxillarium paria tria inter se valde dissimilia. Pes maxillaris primus (fig. 6 g, fig. 13) articulo constitutus basali magno, laminaceo, rotundato, postice setis rectis longissimis marginato, cui insidet, interne, lobus ovatus, paullum inflatus, pilis obsitus, margine spinis validis brevibus curvis armatus; antice lobus minutus trispinosus, extus vero articulus secundus brevis cylindricus, lobo antice acutus illi simili, bispinoso, et in ramos duos abiens setosos, superiorem bi-, inferiorem uni-articulatum. — Pes maxillaris secundus (fig. 6 h, fig. 14), validus cylindraceus, antrorsum curvatus, e pedunculo basali robusto, in quatuor articulos subdivisus, quorum quisque spinis tribus armatus, et articulis apicalibus quatuor spinigeris, primo magno, sequentibus minutis. — Pes maxillaris tertius (fig. 6 i.) longissimus, antennam non multum cedens, articulis quinque compositus, primo elongato, cylindrico, pedem præcedentem crassitie æquante, longitudine superante, antrorsum leviter curvato, antice breviter spinoso; secundo longiore, utrinque attenuato, inflexo, medio longe spinigero; tertio brevissimo bispinoso; quarto brevi, clavato, trispinoso; quinto brevi, in digitos tres falcatos longissimos intus dense pectinatos producto. — Annuli thoracici quatuor, sensim decrescentes, quorum tres primi invicem similes, pediferi, quartus utrinque cornutus, et, præter pedum par quartum, appendices gerens copulæ inservientes (fig. 2). Pedes omnes similes (fig. 6, k), primi minores, quarti longissimi; articulo constituti basali, angulo interno spinigero, et secundo brevi, extus emarginato, quem sequuntur rami duo setosi, externus subbrevior tri —, internus biarticulatus. — Appendices copulatoriæ, in femina (fig. 15) similes et æquales, pede ultimo breviores, ex articulo basali minuto, cui inseruntur rami duo teretes, inferior brevior uniarticulatus, apice bispinosus, superior robustus, longior, apice articulo auctus minuto, trispinoso. In mare (fig. 16) appendices invicem diversæ, forma et magnitudine. Dextra longior, articulis constituta quatuor, validis, basali minuto, secundo paullo majore, crasso, apice interne spina aucto, tertio graciliore, breviusculo, quarto præcedentes simul fere æquante, curvato, apice spina longa arcuata et mucrone minuto laterali. Appendix sinistra brevior articulos habet primos duos fere eosdem, tertium vero et quartum connatos, inferius pulvinatos, apice spina interna minore armatos et externa majore incurva, oblique pectinata. — Abdomen in mare (fig. 2) annulis formatum sex, gracilibus, primo brevissimo, secundo dilatato, utrinque producto, tertio — qvinto cylindraceis, hoc longiore, sexto bifido laminisque aucto binis, spinis armatis quinque incurvis, ciliatis, addito superne cirro gracillimo. In femina (fig. 1) abdomen crassius annulos habet tres, primum minutum, secundum longum utrinque in processum cornutum efformatum, cui affixus est saccus ovorum subreniformis supra concavus; tertium elongatum, sensim dilatatum, bifidum, laminis ut in mare auctum. — Long. 4 millim.

Habitat cum prioribus.

Tab. VI, fig. 1, Broteam falciferum n. repræsentat ♀, a dorso visam; — fig. 2 ♂ a latere visum; — fig. 3—5 antennam dextram maris; — fig. 6 animalis supinati partes anteriores, pressione aliquantum expansas; — fig. 7 antennam secundariam; — fig. 8 labrum; — fig. 9, 10 labrum superius et inferius a latere visa; — fig. 11 mandibulæ partem anteriorem; — fig. 12 conum labri inferioris; — fig. 13 pedem maxillarem primum; — fig. 14 ped. max. secundum; — fig. 15 pedes 5ti paris ♀; — fig. 16 eosdem ♂.

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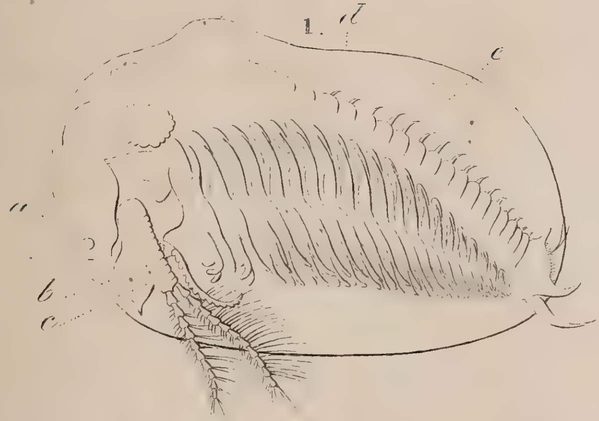

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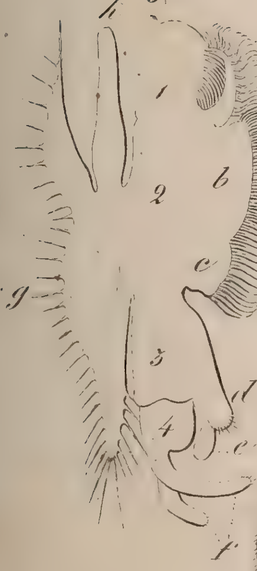

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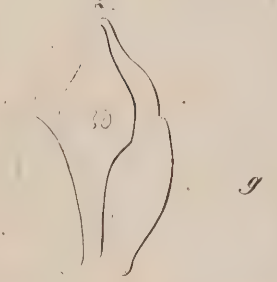

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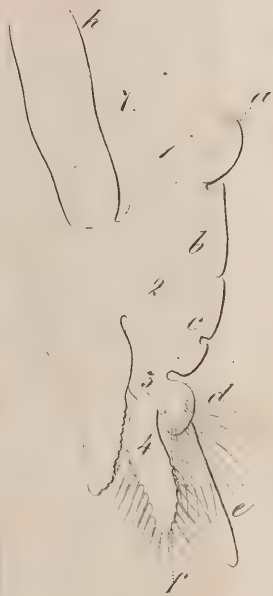

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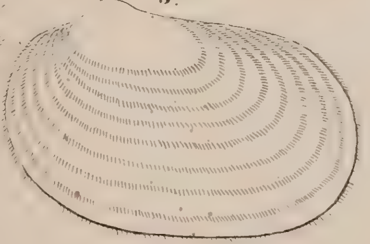

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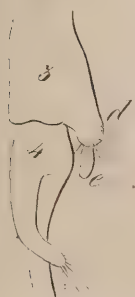

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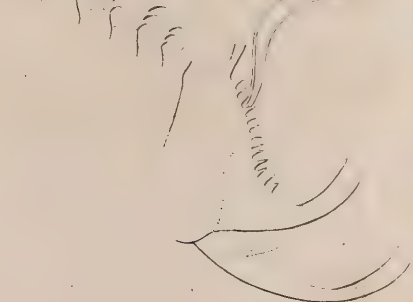

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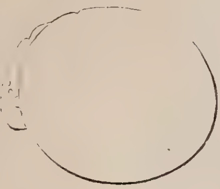

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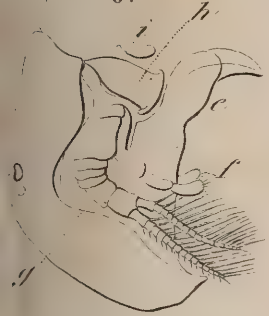

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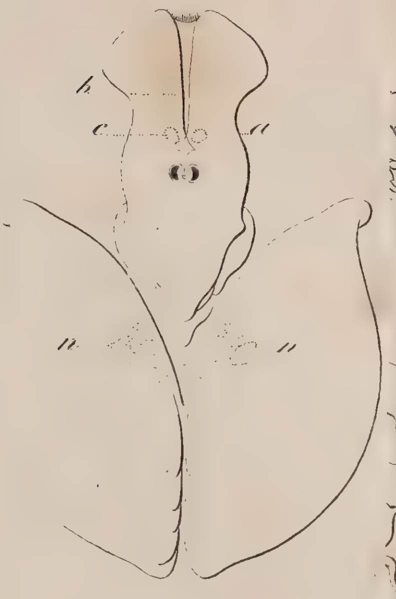

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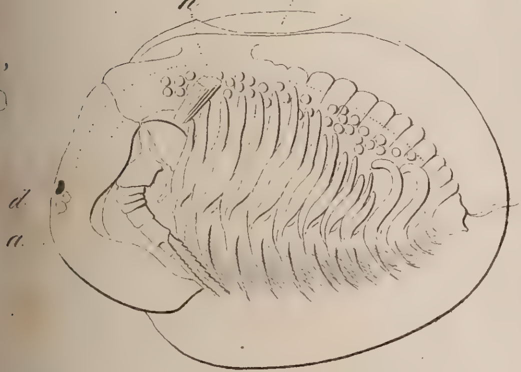

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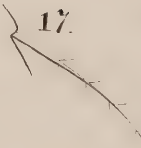

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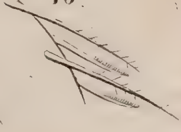

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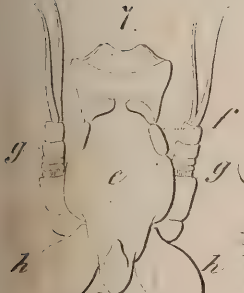

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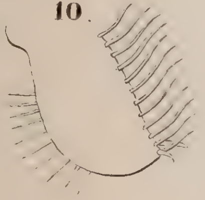

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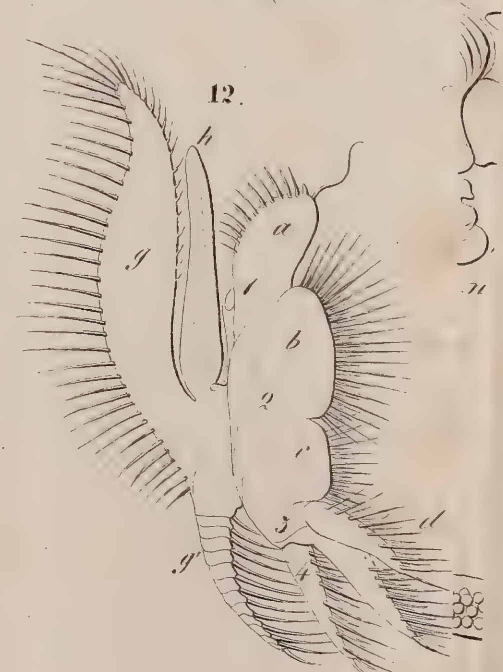

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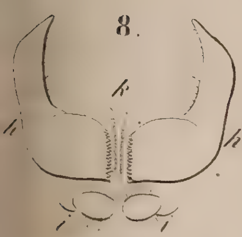

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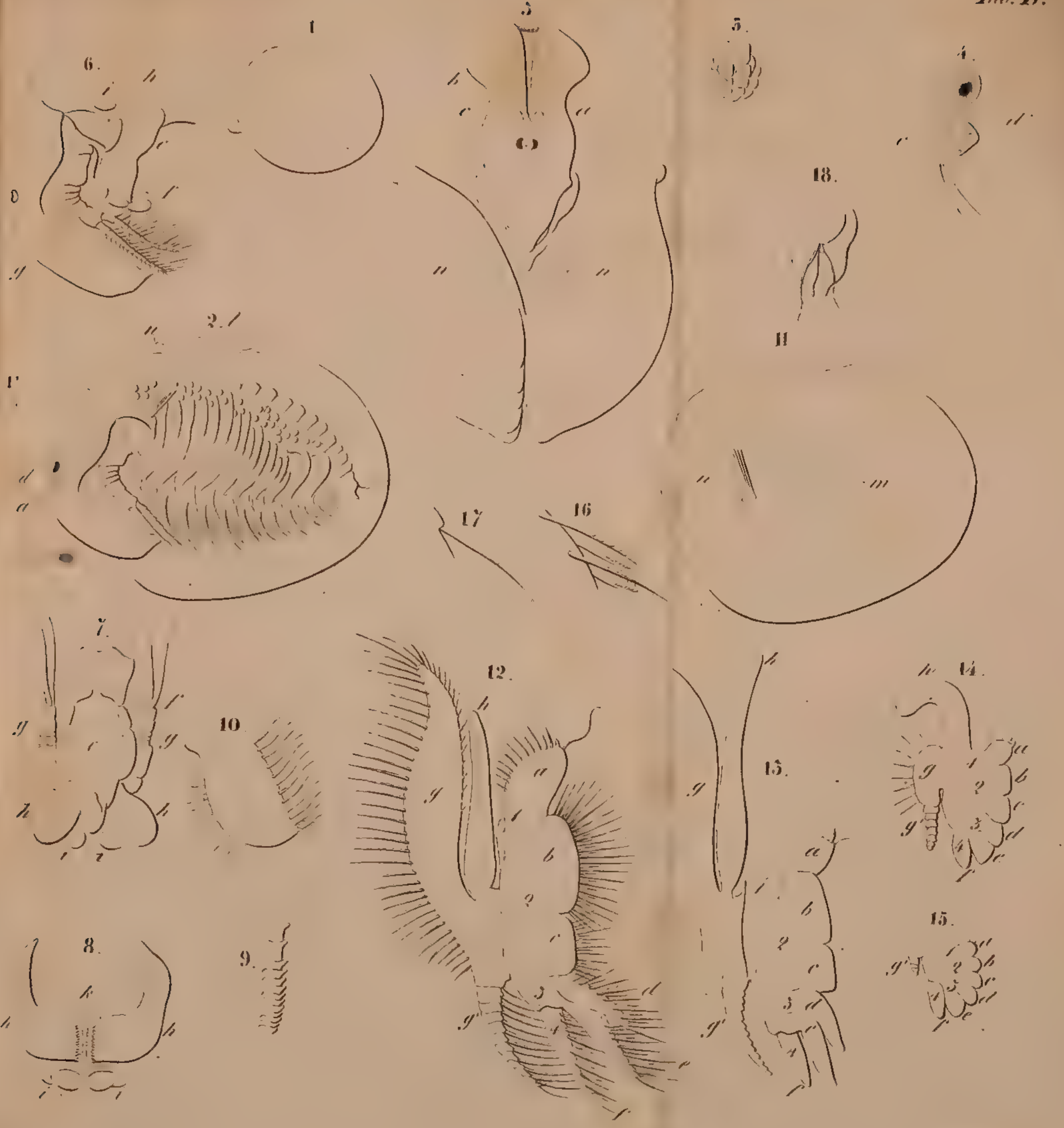

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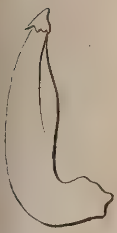

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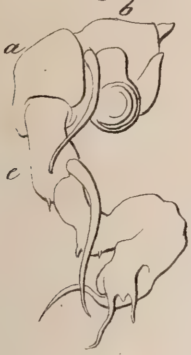

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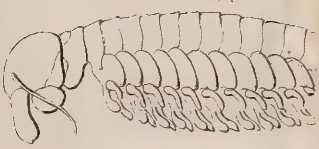

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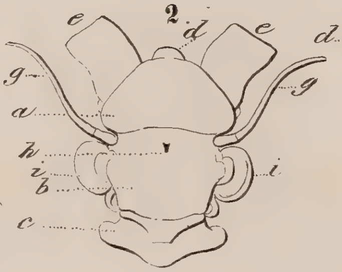

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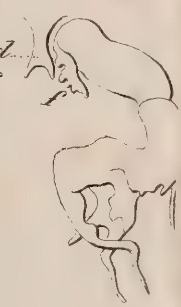

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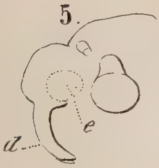

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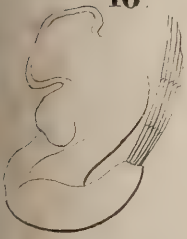

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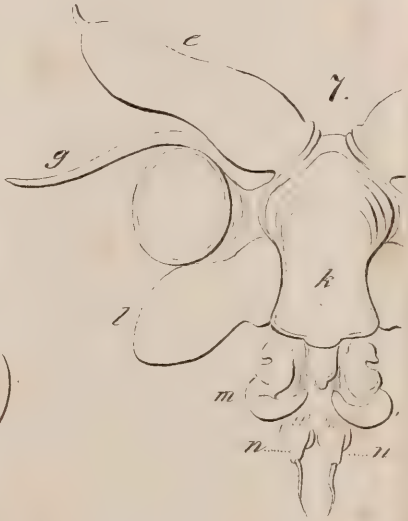

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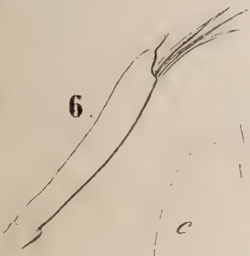

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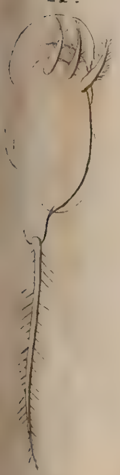

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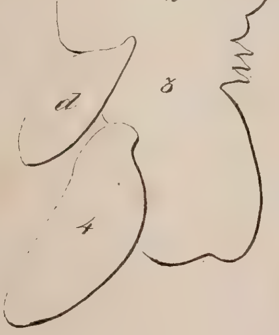

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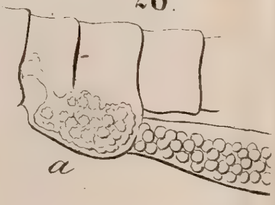

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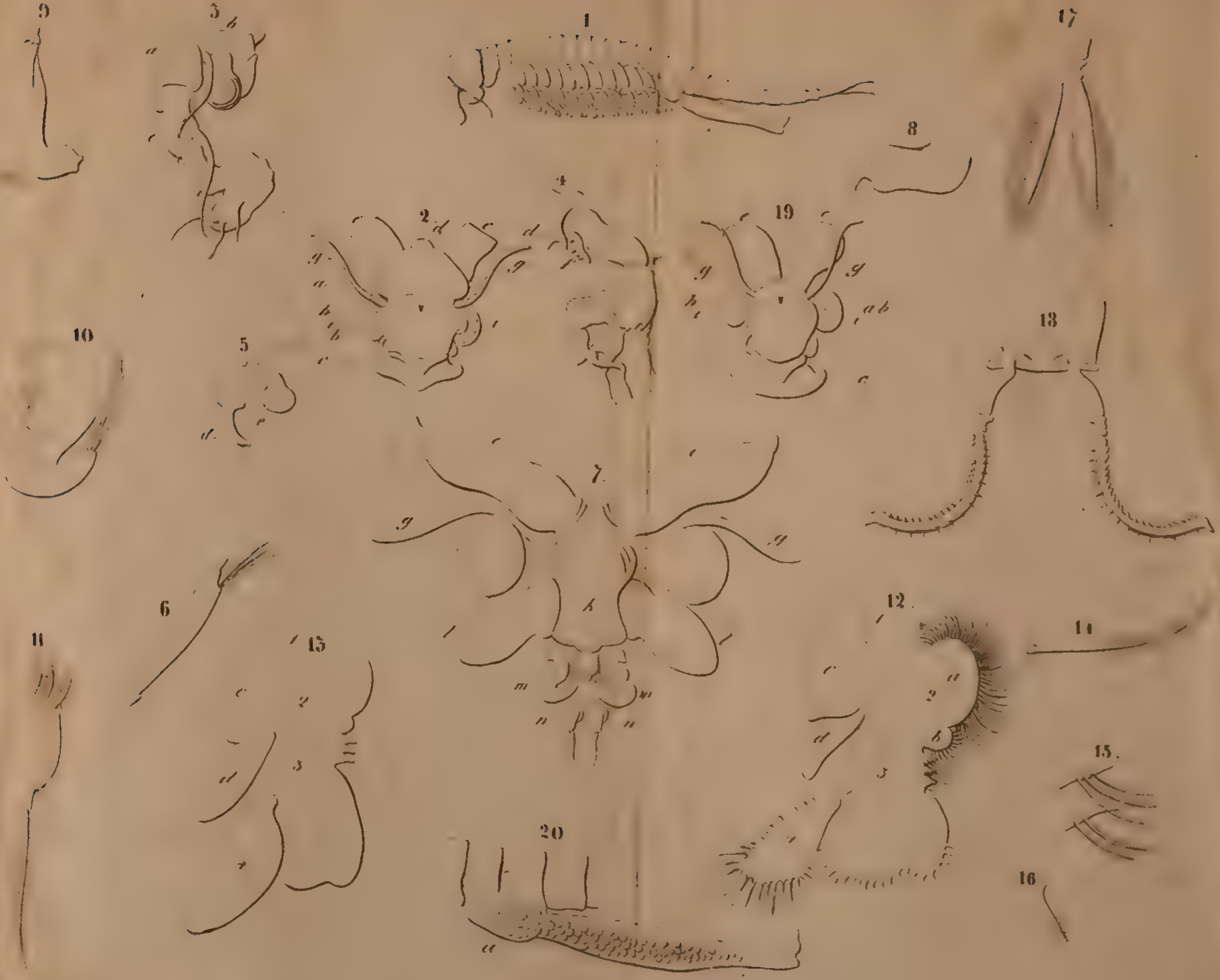
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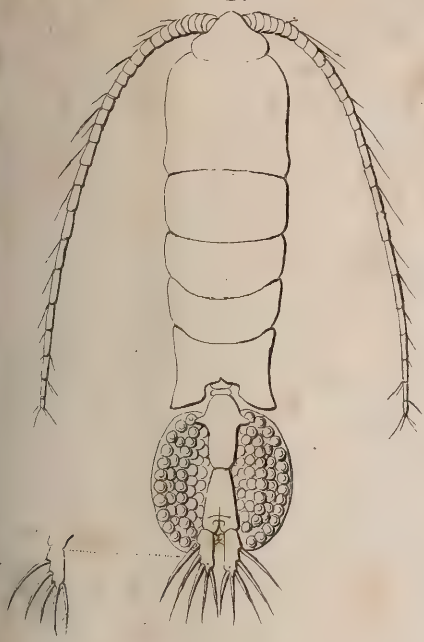

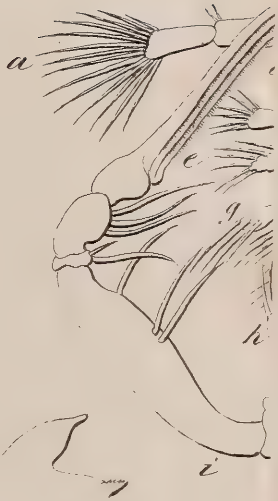

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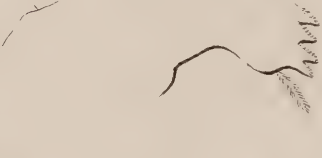

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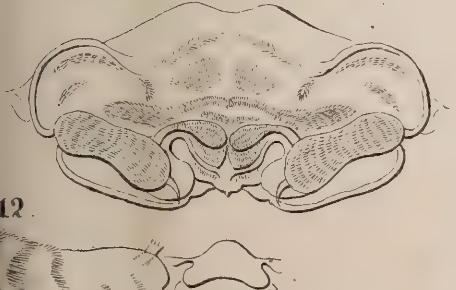

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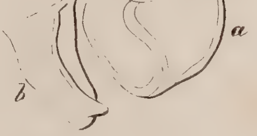

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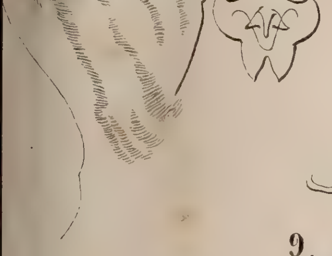

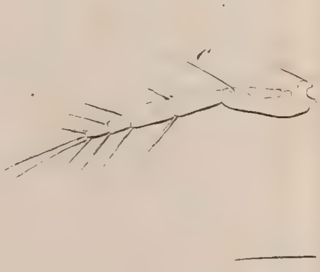

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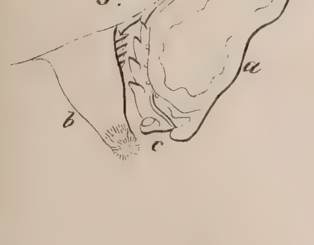

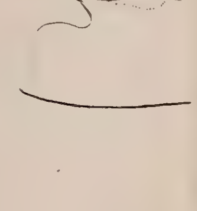

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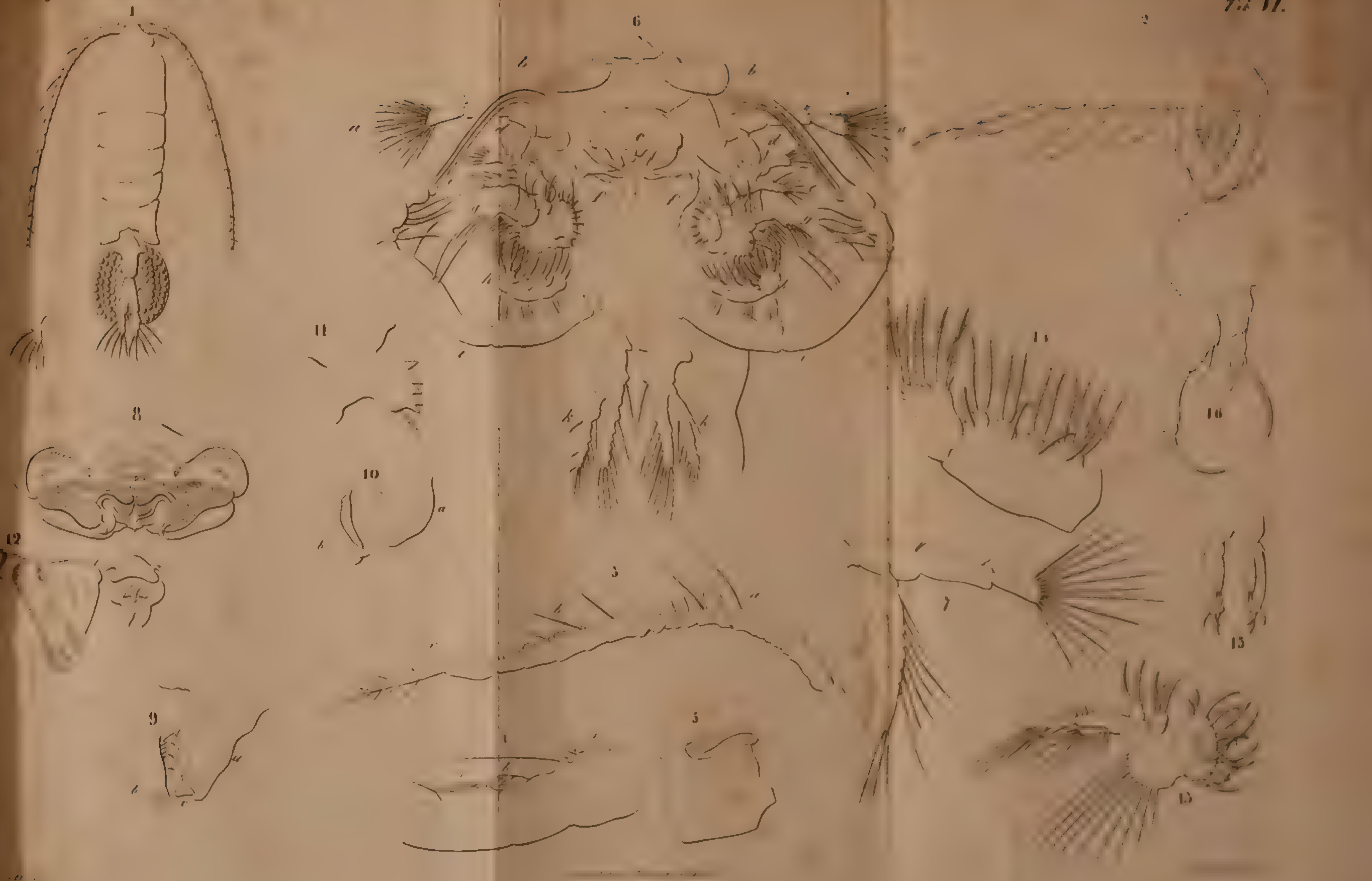

XXX

[illegible] sur la nature, le développement et les métamorphoses d'une petite [illegible] [illegible] réflexions sur les métamorphoses [illegible] en général.

Par M. Joly,

[illegible]

[illegible]

Une des questions les plus intéressantes, sans doute, [illegible] [illegible] relative à l'existence des métamorphoses chez les Crus[illegible] [illegible]. Jusqu'à ces dernières années, les [illegible] [illegible] célèbres ont soutenu que, semblables sous ce rapport [illegible] insectes aptères, les Crustacés sortent [illegible] [illegible] pourvus de tous les organes qu'[illegible] [illegible] [illegible] autorité de Latreille, [illegible] [illegible] qui l'ont suivi, et nous croyons qu'elle est encore ad[illegible] aujourd'hui par le plus grand nombre d'entre eux. [illegible] il y a de [illegible], [illegible], au moment où [illegible] [illegible] en contester la justesse, en annonçant que les [illegible] [illegible] par [illegible] [illegible] que les larves du Crabe commun, dans les [illegible] de vraies métamorphoses (1), [illegible]

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(1) [illegible]

VIXXX

Études *sur les mœurs, le développement et les métamorphoses d'une petite Salicoque d'eau douce* (Caridina Desmarestii), *suivies de quelques réflexions sur les métamorphoses des Crustacés Décapodes en général*,

Par M. Joly,

Professeur de Zoologie à la Faculté des Sciences de Toulouse.

(Présentées à l'Académie des Sciences, le 19 septembre 1842.)

Une des questions les plus intéressantes, mais les plus contestées en histoire naturelle, c'est sans contredit celle qui est relative à l'existence des métamorphoses chez les Crustacés décapodes. Jusqu'à ces dernières années, les auteurs les plus justement célèbres ont soutenu que, semblables sous ce rapport aux insectes aptères, les *Malacostracés* supérieurs sont, en voyant le jour, pourvus de tous les organes qui leur sont propres et qui les caractérisent (1). Cette opinion, étayée de l'imposante autorité de Latreille, a été adoptée par tous les naturalistes qui l'ont suivi, et nous croyons qu'elle est encore admise aujourd'hui par le plus grand nombre d'entre eux. Ce qu'il y a de certain, c'est que, au moment où M. John Thompson osa en contester la justesse, en annonçant que les singuliers animaux désignés par Bosc sous le nom générique de *Zoé*, ne sont autre chose que les larves du *Crabe commun*, dont les jeunes éprouveraient de vraies métamorphoses (2), cette assertion fut repoussée par la plupart des zoologistes. M. Westwood composa même un long mémoire pour en prouver toute l'inexactitude (1). Et, dans son *Bridgewater treatise*, intitulé *History, habits and instincts of animals*, t. 1, p. 80, M. Kirby s'efforça de confirmer, par une observation, selon nous bien incomplète, les argumens de son illustre ami.

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(1) Latreille, Hist. nat. des Crust. et Insect., tome II, page 292.

(2) *Zoological illustrations.*

De son côté, après une dissection attentive d'un grand nombre de *Zoés* conservés dans les collections du Muséum de Paris, M. Milne Edwards fut porté à penser que ce n'est pas aux Décapodes Macroures que ces êtres singuliers doivent être rapportés. « Tous les caractères que nous avons énoncés ci-dessus, ajoute ce célèbre carcinologiste, nous semblent indiquer que c'est à la section des Anomoures qu'ils appartiennent, et, si l'on fait abstraction des épines monstrueuses de la carapace, parties sans aucune importance anatomique, on verra, en effet, que les *Zoés* ne diffèrent que fort peu des jeunes Dromies, et que, pour devenir des animaux semblables à ceux-ci, ils n'ont en aucune façon à subir de véritables métamorphoses ; il suffira que la partie céphalothoracique de leur corps croisse plus rapidement que l'abdomen, et que les appendices du pénultième anneau abdominal se réduisent à un état rudimentaire.

« Ainsi, il nous paraît bien probable que les *Zoés*, de même que les *Megalopes* et les *Monolepis*, ne sont pas des animaux parfaits, mais le jeune âge de quelque Décapode Macroure. » (2)

Dans un Mémoire ayant pour titre : *On the double metamorphosis in the Decapodous crustacea* (3), M. Thompson regarde, au contraire, les Mégalopes comme le second âge du *Carcinus mœnas*, et il affirme qu'il a vu, il est vrai d'une manière moins satisfaisante (*Not in quite so satisfactory a manner*), un *Portunus* et un *Inachus* passer aussi de l'état de *Zoé* à celui de *Mégalope*. Enfin, il promet d'établir ce fait de la manière la plus incontestable, même pour ceux qui doutent encore (*The*

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(1) *On the supposed existence of metamorphoses in the Crustacea*, Philosop. Transact., part. II, p. 311, 1835.

(2) Milne Edwards, Hist. nat. des Crust., tome II, page 437. Paris, 1837.

(3) *Philosophieal transactions*, 1835, part. II, p. 359.

yet sceptical), dans le prochain mémoire où il s'occupera des genres *Eriphia*, *Thelphusa*, *Gecarcinus* et *Pinnotheres.* (1)

Quant à ce qui concerne les Crustacés décapodes macroures, Thompson assure, contrairement à l'opinion généralement admise, qu'*ils subissent aussi de vraies métamorphoses.* Il prétend les avoir constatées chez les genres *Palinurus*, *Palæmon*, *Squilla*, *Pagurus*, *Porcellana*, *Galathea*, *Crangon* et *Astacus.* Il n'excepte pas même l'*Astacus fluviatilis* ou Écrevisse commune, bien que Ratke ait avancé comme un fait positif que cet animal naît, à très peu de chose près, avec les formes de l'adulte. (2)

Dans un article de Ratke, inséré dans la Physiologie de Burdach, nous lisons ce qui suit :

« Le développement du *Palæmon*, du *Crangon*, de l'*Eriphia spinifrons*, et, par conséquent, des Crabes eux-mêmes, ne diffère pas essentiellement de celui des Écrevisses de rivière. La plus grande différence consiste en ce que, chez tous ces animaux, les yeux ont une grosseur énorme pendant la dernière moitié de la vie embryonnaire, quoique plus tard ils ne présentent rien de particulier sous le rapport du volume ; au contraire, la queue (abdomen) des embryons avancés en âge, même chez les Crabes, est aussi longue et aussi grêle que celle de l'Écrevisse au moment de l'éclosion ; elle est même pourvue d'un éventail. »

Et quelques lignes plus loin : « Les antennes, les organes manducateurs, les pattes et probablement aussi les branchies, sont déjà en nombre complet chez les Décapodes quand ils éclosent. Les organes visibles à l'extérieur ne subissent non plus, après l'éclosion, aucun changement essentiel dans leur composition, leur situation et leur fonction, si ce n'est toutefois que le rudiment de l'éventail disparaît chez les Crabes. Les changemens qui surviennent chez le jeune animal portent presque exclusivement sur les proportions seules. *Il n'est donc pas vrai que, comme l'a prétendu Thompson, les Décapodes sortent de l'œuf dans un état fort imparfait, et les changemens qui se passent encore pendant l'accroissement ne méritent point le nom de métamorphose.* » (1)

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(1) M. Westwood annonce (loc. cit., p. 326) que le Mémoire sur le genre *Pinnotheris* a paru. J'ignore si l'auteur a tenu sa promesse, en ce qui regarde les autres genres ci-dessus désignés.

(2) Voir l'extrait du Mémoire de Ratke sur le *Développement de l'œuf des Ecrevisses*, Ann. des Sc. nat., tome XX, page 442, 1^{re} série. — Roesel assure aussi que les petites Ecrevisses que l'on trouve, en juin et juillet, sous le ventre des femelles, sont déjà pourvues de tous leurs membres et de toutes leurs parties, et qu'elles ressemblent entièrement aux Ecrevisses adultes. « Die kleinen Krebse sind bereits mit allen ihren Gliedern und Theilen auf das volkommenste « verschen, und kommen den grosseren Krebsen in allem gleich. » (*Inseckten Belustigung*, tome III, page 336. — Latreille lui-même prétend que les *jeunes Ecrevisses sont, au moment de leur naissance, tout-à-fait semblables à leurs mères.* (Règne animal de Cuvier, tome IV, page 90, 2^e édit.)

Depuis la publication des travaux de Thompson, le capitaine Ducasse est, du moins à ma connaissance, le seul qui se soit occupé de constater l'existence des métamorphoses chez les Crustacés Décapodes, soit Brachyures, soit Macroures. Dans une lettre adressée au Rév. Léonard Gengus, et insérée dans les *Annals of natural history*, 1838, il donne la figure de deux larves appartenant, l'une au *Palæmon variabilis* (Ditch Prawn) et l'autre au *Crangon vulgaris* (Common Schrimp), mais il se contente en quelque sorte de renvoyer à ses dessins, sans entrer dans tous les détails qu'exigeait naturellement l'importance de son sujet.

On peut en dire autant de la notice où ce même auteur parle des métamorphoses du *Carcinus mœnas,* dont la larve ressemble tout-à-fait, selon lui, à celle du *Cancer Pagurus*, figurée par Thompson dans ses *Zoological researches*, et doit passer par une série de changemens successifs avant de devenir Crabe parfait. (2)

Tels sont les travaux publiés jusqu'à ce jour sur les métamorphoses des Crustacés Décapodes, ou du moins ceux qui sont venus à notre connaissance (3). Quel que soit le mérite de leurs auteurs, aucun d'eux n'a entraîné la conviction des zoologistes, et la question est encore indécise. Toutefois, elle a paru assez intéressante à la Société hollandaise des Sciences de Harlem, pour qu'elle en ait fait pendant plusieurs années le sujet d'un prix que nul n'est venu disputer. En 1840, cette Société formulait ainsi le programme qui devait être rempli avant le 1^er^ janvier 1841 :

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(1) Burdach, *Physiologie*, tome III, page 119 de la traduction française. Paris, 1838.

(2) *Annals of natural history*, 1839. Je dois ces détails à l'obligeance de M. le docteur A. de Quatrefages, qui a bien voulu y joindre les calques des principales larves figurées par le capitaine Ducasse.

(3) Nous n'avons pu nous procurer les *Remarques* du docteur Ratke *sur le développem*

« Les recherches du D^r^ Ratke ont prouvé que les Écrevisses « d'eau douce, après avoir quitté l'œuf, ne subissent point de « métamorphoses considérables; tandis que, d'après les décou- « vertes importantes de M. Thompson, les Crabes ne parvien- « nent à leur état parfait qu'après être passés par plusieurs états « intermédiaires. Cette grande différence parmi deux genres d'a- « nimaux peu distans l'un de l'autre a attiré l'attention de la « Société. Elle demande que l'on fasse des recherches ultérieures « à cet égard, et qu'en conséquence, on donne la description, « accompagnée de figures exactes, d'une ou de plusieurs es- « pèces de Crabes, depuis la sortie de l'œuf jusqu'à l'état parfait. »

Nous trouvant aujourd'hui dans l'impossibilité de faire des observations suivies sur les Crustacés qui vivent dans la mer, désireux toutefois de nous convaincre par nous-mêmes s'il était réellement vrai que *tous* les Décapodes Macroures fussent pourvus en naissant de tous les organes qu'ils possèdent à l'âge adulte, nous avons cherché à tirer parti du grand nombre de *Caridines* que nous avons trouvées dans le canal du Midi (1). Nous avons observé leur développement dans l'œuf avec le plus grand soin, et nous sommes arrivés à conclure que nos petites Salicoques, bien que très voisines du genre des Écrevisses, éprouvent, avant d'arriver à l'état parfait, des modifications telles, qu'il nous semble impossible de leur refuser le nom de *vraies métamorphoses*. C'est le résultat de ces observations,

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des Crustacés Décapodes, et notamment de l'*Astacus marinus*, du *Pagurus Bernhardus*, de l*e* *Galathea rugosa* et de l'*Hyas avaricus* (*Archiv. für Naturgeschichte de Wiegmann*, 1840). Nous ignorons par conséquent si ces remarques ont amené l'auteur à contredire ses premières assertions.

(1) Nous pêchions des insectes aquatiques lorsque nous trouvâmes, M. Boisgiraud et moi, la petite Salicoque dont je vais tracer l'histoire.

maintes et maintes fois réitérées, que nous avons l'honneur de soumettre au jugement de l'Académie.

Notre travail sera divisé en deux parties.

Dans la première, nous décrirons le petit Crustacé que nous avons rencontré dans le canal du Midi, et que l'on a rapporté à tort, selon nous, au genre *Hippolyte ;* puis nous ferons connaître ses mœurs, et quelques particularités intéressantes qui se rattachent à son histoire anatomique et physiologique.

Dans la seconde partie, nous étudierons le développement de l'œuf avant et après la fécondation ; nous comparerons les divers organes du jeune animal avec ceux de l'adulte, et nous terminerons par quelques réflexions sur les métamorphoses des Crustacés Décapodes, considérées d'une manière générale.

PREMIÈRE PARTIE.

Avant d'étudier le développement et les métamorphoses du petit Crustacé qui fait l'objet de ce Mémoire, il nous semble indispensable de décrire d'abord cet animal lui-même, et de fixer la place qu'il doit occuper dans les ordres zoologiques. A la première inspection, il est facile de juger qu'il appartient à l'ordre des *Décapodes Macroures*, et à la famille des *Salicoques* (1). En effet, son corps comprimé latéralement, son abdomen très grand et arqué; sa queue large et étalée en forme d'éventail, ses pattes thoraciques grêles et longues, enfin, ses fausses pattes natatoires encaissées à leur base par des prolongemens lamelleux du segment dorsal des anneaux correspondans de l'abdomen : voilà autant de caractères qui frappent au premier coup-d'œil, et qui permettent de prononcer avec certitude sur la famille dont il doit faire partie. Un examen plus attentif vient confirmer cette détermination (voyez Pl. 3, fig. 1). En effet, la carapace, semblable, quant à la forme, à celle des *Palémons*, se termine antérieurement par un rostre denté en dessus et en dessous, dont la largeur et le nombre des dents varient suivant l'âge plus ou moins avancé de l'individu (fig. 1 et 2).

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(1) Jusqu'au moment où M. Millet découvrit, dans les eaux du Loir, de la Mayenne et de Sarthe, le petit Crustacé dont nous nous occupons, les auteurs de carcinologie les plus estimés avaient avancé, dans leurs ouvrages, que *toutes les Salicoques* habitaient dans la mer. M. Desmarets disait encore dans ses *Considérations générales sur la classe des Crustacés*, publiées en 1824. « On ne connaît aucun Crustacé de la tribu des *Salicoques*, vivant dans les » eaux douces » (page 216, *note*). A l'*Hippolyte Desmarestii* (Millet), *Caridina Desmarestii* (Nobis), on peut ajouter maintenant la *Caridina longirostris* (Milne Edwards), trouvée par M. Roux dans la rivière de la Macta, près d'Oran, et peut-être aussi la *Caridina typus* (Milne Edwards, Hist. nat. des Crust.)

Yeux. Les yeux, portés sur des pédoncules mobiles, paraissent tantôt verts, tantôt bruns, quelquefois d'un brun noir (fig. 3).

Antennes. Les antennes, au nombre de deux paires, sont placées, les internes immédiatement au-dessous des pédoncules oculaires ; les externes au-dessous des parties antérieures et latérales de la carapace.

Le pédoncule des premières est triarticulé (fig. 14). L'article basilaire (*a*) est muni à son bord externe d'une longue et forte épine (*d*) ; le troisième article (*c*) se termine par deux filets multiarticulés, dont l'externe (*e*), d'un quart à-peu-près moins long que l'interne (*f*), et d'abord renflé sur un peu plus de la moitié de sa longueur, devient brusquement aussi grêle que la partie correspondante du filament interne.

Les antennes extérieures (fig. 1) sont formées d'un pédoncule de deux articles et d'un seul filet au moins aussi long que le corps de l'individu. A leur base est fixé un appendice lamelleux, de forme à-peu-près ovalaire, dont la longueur égale celle du rostre lui-même, et dépasse conséquemment un peu celle du pédoncule des petites antennes. Au bord extérieur de cet appendice, on aperçoit une grosse épine à partir de laquelle commence une série de poils ciliés qui se continuent sur tout le bord interne. Quelques poils très courts se montrent également à la base des articles qui composent chaque filet antennaire ; mais il est à remarquer que ces poils sont d'autant moins nombreux que l'animal est plus âgé ; souvent même ils finissent par disparaître entièrement.

Bouche. La bouche se compose, comme chez la plupart des Crustacés Décapodes, de deux replis tégumentaires désignés sous les noms de labre et de languette, et de six paires d'appendices locomoteurs, modifiés de manière à pouvoir remplir de nouvelles fonctions.

A. *Replis tégumentaires. — a. Labre* (fig. 5). Il est charnu, légèrement échancré sur son bord antérieur, où l'on aperçoit quelques poils très courts.

b. Languette. La lèvre ou languette (fig. 6) est profondément bifide, et offre au point de sa bifurcation un petit appendice cordiforme et renflé.

B. *Pattes modifiées.* Parmi les pattes modifiées pour servir à la manducation, on distingue :

1° Une paire de mandibules (fig. 7) arquées, tout-à-fait dépourvues de palpes (1), et formées de deux branches dentées sur leur bord (*a*, *b*);

2° Deux paires de mâchoires, dont la première (fig. 8) offre à son côté interne deux lames, l'une ovalaire (*b*), l'autre demi-circulaire (*a*), toutes deux garnies d'épines ou ciliées sur leurs bords, et au côté externe une espèce de palpe incomplètement développé (*g*).

La dernière paire de mâchoires (fig. 9), plus grande que la première, mais d'une composition analogue quant à ce qui regarde la tige (*b c*), est munie à son côté externe d'un appendice très long (fouet *a*), qui se loge dans le canal efférent des branchies et remplit un rôle très important dans l'acte de la respiration ;

3° Trois paires de pattes-mâchoires (pieds-mâchoires, mâchoires auxiliaires). La première paire de pattes-mâchoires, ou pattes-mâchoires antérieures (fig. 10), se compose d'une tige de deux articles (*a*, *b*) fortement velus, d'un palpe très développé (*g*), à la base duquel on aperçoit un petit organe que je crois être une branchie rudimentaire (*h*).

La deuxième paire de mâchoires auxiliaires (fig. 11) est formée d'une tige distinctement multiarticulée (*a*, *b*, *c*, *d*, *e*, *f*) et d'un palpe filiforme (*g*) également multiarticulé à son extrémité supérieure. Une branchie parfaitement reconnaissable (*h*) est fixée à l'article basilaire de la tige.

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(1) Nouvelle exception à joindre à celles que M. Milne Edwards a déjà signalées chez les Crangons, les Lysmates, les Erichtes, etc., et preuve nouvelle que la présence des palpes mandibulaires est loin d'être, comme on l'a dit, un caractère invariable chez tous les Crustacés Décapodes.

La troisième paire de mâchoires auxiliaires, ou pattes-mâchoires externes (fig. 12) offre une tige très longue (*a*, *b*, *c*, *d*), quadriarticulée, pédiforme, et un palpe semblable à celui des pattes-mâchoires précédentes (*g*). Sur l'article basilaire, on trouve, outre une vraie branchie (*h*), un petit appendice corné, creux, allongé, pointu à l'une de ses extrémités, cordiforme à l'autre extrémité. Cette espèce de vésicule, que nous retrouvons un peu modifiée sur l'article basilaire des pattes thoraciques, rappelle l'organe analogue dont sont pourvus les *Lysmates*, et représente sans doute un fouet rudimentaire.

Thorax. Confondu, ou du moins intimement soudé avec les anneaux céphaliques, le thorax est lui-même formé de cinq anneaux pédigères dont les arceaux supérieurs sont couverts par la carapace.

Pattes thoraciques. La première paire de pattes thoraciques, ou pattes didactyles antérieures (fig. 15), est courte et plus grosse que toutes celles qui la suivent. On y distingue une hanche de deux articles (*a*, *b*), un trochanter (*c*), un bras (*d*), un carpe (*e*) et une main didactyle (*f*).

Le premier article de la hanche porte : 1° un palpe (*l*), tout-à-fait semblable à celui des deux dernières pattes-mâchoires ;

2° Un appendice ou vésicule (*h*), dont l'extrémité supérieure est large, percée d'une ouverture circulaire, et fixée au-dessous d'un tubercule pilifère (*i*), tandis que son extrémité inférieure ou libre se rétrécit et se recourbe en faucille, pour se loger dans une cavité creusée au sommet d'un mamelon (*d*) placé à la face interne de l'appendice (voy. fig. 18) ;

3° Une touffe de poils épineux (*j*) et fixés sur un tubercule (*i*) ;

4° Une autre touffe de poils (*k*), qui rappellent ceux des mâchoires elles-mêmes ;

Le deuxième article ne présente rien de remarquable. Il en est de même du trochanter et du bras, qui sont tous les deux à-peu-près cylindriques. Quant au carpe lui-même, il offre une forme irrégulièrement triangulaire, et une échancrure demi-circulaire, dans laquelle est reçu le talon de la main. Celle-ci est assez allongée, et chacun des doigts qui la terminent porte à son extrémité une épaisse touffe de poils qui s'entrecroisent quand le doigt mobile (*g*) se rapproche de l'autre.

La deuxième paire de pattes thoraciques (fig. 16) ressemble beaucoup à la première; seulement elle est plus grêle, plus allongée, et l'échancrure du carpe est moins fortement prononcée.

Les trois autres paires sont monodactyles et dépourvues de palpe (fig. 17). On y compte, comme aux précédens, sept articles ainsi distribués, savoir : deux pour la hanche (*a*, *b*), un pour le trochanter (*c*), un pour le fémur (*d*), un pour la jambe (*e*), un pour le métatarse (*f*) et un pour le tarse ou doigt (*g*).

Pattes natatoires et abdomen. — Il est formé de six segmens, dont les cinq premiers seulement sont munis en dessous de fausses pattes natatoires. Toutes ces pattes sont recouvertes et comme encaissées à leur base par un prolongement latéral de l'arceau supérieur des anneaux de l'abdomen auxquels elles correspondent. Celles des femelles (fig. 19) offrent beaucoup de ressemblance avec celles des *Lysmates*, c'est-à-dire qu'elles sont formées d'un pédicule peu épais, excavé à sa face inférieure, et portant deux lames ou palettes lancéolées (*b*, *c*), de grandeur inégale, ciliées sur tout leur pourtour, dont la plus petite offre à son bord interne un appendice digitiforme (*d*). Il est à remarquer que la lame externe des pattes sous-abdominales de la première paire est seule parfaitement développée chez la femelle. L'autre reste rudimentaire, mais sa forme ne change pas.

Chez le mâle, au contraire (fig. 20), cette dernière lame s'est recourbée en faucille (*c*), et ne présente sur son bord interne que des épines assez fortes. Le bord externe est nu.

On voit en outre, au bord interne de la plus petite palette des pattes sous-abdominales, un appendice conique et velu (fig. 21 *d*) qui manque à la femelle, et à la base de cet appendice un autre organe plus petit (*e*), cylindrique, et terminé par un renflement garni de tubercules rougeâtres, lequel n'est peut-être pas sans usage au moment de la copulation. Enfin, le pédicule de toutes les fausses pattes est plus épais, plus charnu, mais les lames ou palettes sont moins longues et moins larges que chez la femelle.

Queue. Un seul article triangulaire (*b*), flanqué de chaque côté d'une paire de lamelles ciliées (*c*, *d*) (*pattes caudales*, Savigny), constitue la queue ou plutôt la nageoire caudale. Les lames intermédiaires sont dépourvues d'épines. On y remarque une dent assez forte à-peu-près au tiers inférieur du bord externe des lamelles extérieures, qui paraissent en outre articulées en cet endroit. Quant au segment caudal lui-même, il présente à sa face supérieure une double rangée de courts prolongemens épineux. Cinq ou six épines plus longues terminent ce segment, à la base duquel se trouve percé l'anus.

Taille. La taille de nos Crustacés adultes est de 25 à 30 ou 34 millimètres pour les plus grands individus, à partir de l'extrémité antérieure du rostre jusqu'à l'extrémité postérieure du segment caudal.

Couleur. Quant à la couleur (1), elle varie suivant les âges et les individus. Presque aussi transparens que le cristal long-temps encore après leur naissance, ces petits animaux perdent, en grandissant, et leur couleur blanchâtre, et cette transparence qui permettait d'abord de distinguer à travers leurs muscles et leurs tégumens la plupart des organes internes (tube digestif et ses annexes, chaîne nerveuse ventrale, cœur, ovaires, etc.). Lorsqu'ils sont parvenus à l'époque où ils sont aptes à se reproduire, on voit leur corps et ses différens appendices se parsemer irrégulièrement d'une foule de taches stelliformes, qui lui donnent des teintes tantôt verdâtres, tantôt d'un beau vert, quelquefois grisâtres ou brunes, d'autres fois enfin entremêlées de vert et de bleu plus ou moins foncé. (Voir les figures 1, 13, 14.)

Détermination du genre auquel appartient notre animal. Si l'on a suivi avec quelque attention la description qui précède, on n'aura pas eu de peine à se convaincre que notre animal est réellement une Salicoque. Mais à quel genre appartient-il? Telle est maintenant la question qu'il s'agit de résoudre.

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(1) Après la mort, nos Crustacés perdent d'abord leur transparence, et, si on les laisse dans l'eau, ils ne tardent pas à rougir et à se putréfier, en répandant une odeur réellement insupportable. Par le dessèchement, la cuisson ou l'immersion dans l'alcool, ils deviennent d'un rouge d'autant plus foncé, qu'ils sont plus avancés en âge. La matière qui les colore est soluble dans l'eau, l'alcool et l'éther. Chose assez remarquable, elle devient noire sur les individus morts dans l'eau salée. Du reste, nous avons déjà constaté le même fait chez l'*Artemia salina*, auquel on avait faussement attribué la coloration en rouge de nos marais salans.

Quoique voisin des Pandales, il s'en distingue tout d'abord, en ce que, chez ceux-ci, les deux pattes antérieures sont monodactyles.

Il n'est pas non plus possible de le rapporter au genre des *Hippolytes,* car il n'a pas, comme ces derniers, la main de la deuxième paire de pattes *extrêmement petite,* ni surtout le *carpe multiarticulé.* Ajoutons que tous ses pieds thoraciques offrent à leur base des appendices (fouets rudimentaires) qui paraissent manquer chez les Hippolytes. Le genre dont il me semble se rapprocher le plus, et dont il devra très probablement faire partie, est le genre *Caridina* (Milne Edw.), de la tribu des *Alphéens* (1). En effet, ses antennes internes, très longues et terminées par deux grands filets multiarticulés, dont l'un est renflé sur une partie de sa longueur; ses antennes externes, recouvertes à leur base par un appendice lamelleux ovalaire, cilié et orné d'une épine vers l'extrémité de son bord externe; ses deux paires de pattes didactyles dont les antérieures, très courtes, *ont un carpe à-peu-près triangulaire et terminé antérieurement par un bord concave qui reçoit la base de la main;* tel est l'ensemble des caractères sur lesquels nous nous basons pour rapporter notre animal au genre *Caridina.* Nous ne conserverions plus le moindre doute sur notre détermination si, à la caractéristique précédente, M. Milne Edwards n'ajoutait que *le carpe des pattes de la deuxième paire est de forme ordinaire,* et si, dans le dessin qu'il a donné de la *Caridina typus,* nous pouvions compter un nombre de pattes abdominales égal à celui que nous trouvons chez notre Crustacé. Or, celui-ci en a cinq paires bien distinctes, nous n'en voyons que quatre chez la *Caridina typus* (2). Enfin nous ignorons si les deux espèces, qui jusqu'à présent faisaient partie de ce nouveau genre, possèdent ou ne possèdent pas, à la base des pattes, des appendices semblables à ceux que nous avons décrits. Quoi qu'il en soit, afin de ne pas étendre, sans raisons suffisantes, la liste déjà si nombreuse des genres établis sur des bases très contestables, nous aimons mieux adopter un nom connu, que nous donner le facile plaisir d'en créer un nous-mêmes, et d'y accoler un orgueilleux *Nobis.*

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(1) Voyez la figure 4 de la planche 25 *bis* de l'Hist. nat. des Crust., par M. Milne Edwards.

(2) Voyez la figure 4 de la planche 25 *bis* de l'*Histoire naturelle des Crustacés*, par M. Milne Edwards. (Ce nombre est aussi de cinq chez la Caridine type.)

(*Note des réd.*)

Malgré les différences réelles ou présumées que nous signalions tout-à-l'heure, une considération puissante nous engage encore à ranger notre Salicoque parmi les *Caridines;* c'est celle des stations de ces petits animaux. Jusqu'au moment où M. Millet découvrit, dans plusieurs rivières du département de Maine-et-Loire, le Crustacé qu'il a décrit sous le nom d'*Hippolyte de Desmarest*, on ne connaissait, avons-nous dit, aucune Salicoque vivant dans les eaux douces. Or, tout nous porte à penser que l'animal de M. Millet est identique avec le nôtre. Nous en dirons autant de celui que M. Léon Dufour a trouvé dans l'Adour, et qu'il a brièvement décrit (1) comme voisin des Pandales; mais les Pandales et les Hippolytes habitent les eaux salées; la *Caridina longirostris* (Milne Edw.) vit, au contraire, dans les eaux douces (2). Cette considération, jointe à celles que nous avons déjà fait connaître, nous engage donc à rapporter au genre *Caridina*,

1° *L'Hippolyte Desmarestii* de M. Millet;

2° Le Crustacé de l'Adour (3);

3° Enfin, la Salicoque trouvée dans le canal du Midi, et à ne faire de ces trois animaux qu'une seule et même espèce à laquelle nous conserverons la dénomination spécifique adoptée par M. Millet.

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(1) Ann. de la Soc. Entom., tome III, page 477.

(2) Quant à la *Caridina typus*, sa patrie et ses mœurs sont inconnues; mais il est probable qu'elle habite aussi les eaux douces.

(3) Cette partie de mon Mémoire était déjà rédigée lorsque M. Léon Dufour me fit l'honneur de répondre, de la manière la plus aimable, à la question que j'avais pris la liberté de lui soumettre, au sujet de l'identité présumée du Crustacé de l'Adour et du mien. « Oui, positivement oui, me disait cet habile et consciencieux anatomiste, le petit Crustacé que vous « m'avez communiqué est le même que celui dont j'ai dit un mot dans le tome III des *Annales* « *de la Société entomologique*, et que M. Millet avait décrit à mon insu sous le nom « d'*Hippolyte Desmarestii.* » Un peu plus loin, il m'annonçait qu'il croyait avoir trouvé dans une anse de l'Adour, l'*Isaura cycladoides*, que je n'ai pu, malgré des recherches très attentives, rencontrer cette année aux environs de Toulouse.

Nous caractériserons cette espèce de la manière suivante : *Caridina Desmarestii* (nobis), *Hippolytes Desmarestii* (Millet), Ann. des Sc. nat. t. XXV, Pl. 10, fig. 1 et 2, 1^{re} série; Léon Dufour, Ann. de la Soc. entom., t. III, p. 477.

Rostre comprimé, très long, dépassant le pédoncule des antennes externes, à-peu-près droit sur son bord supérieur, qui est garni d'une trentaine de dents ou spinules acérées, rapprochées, uniformes; deux fois courbé sur son tranchant inférieur, à la moitié antérieure duquel on remarque de dix à douze dentelures plus écartées que celles du bord supérieur (1). Carpe des pattes didactyles de la deuxième paire plus grêle et plus long que celui de la première, *mais creusé comme celui-ci d'une échancrure destinée à recevoir le talon de la main. Un palpe filiforme et obscurément multiarticulé à la base de toutes les pattes didactyles. Un appendice (fouet rudimentaire) en forme de vésicule un peu aplatie, couché sur l'article basilaire des mâchoires auxiliaires externes et de toutes les pattes thoraciques.*

Longueur de l'animal. Elle varie de 25 à 34 millimètres pour les plus grands individus, à partir de l'extrémité antérieure du rostre jusqu'à l'extrémité postérieure du segment caudal. Ce Crustacé habite les différentes rivières du département de Maine-et-Loire, l'Adour et le canal du Midi. (2)

Après avoir décrit l'organisation extérieure de notre *Caridine*, occupons-nous de ses mœurs et de quelques phénomènes intéressans qui se rattachent à son histoire physiologique.

Mœurs et physiologie de la Caridine Desmarestii. Nos Salicoques sont du petit nombre des Crustacés qui vivent en sociétés nombreuses au milieu des plantes aquatiques. Presque toujours on les trouve rapprochées de la surface de l'eau et cramponnées aux tiges et aux feuilles des *Potamogetons*, des *Myriophyllum* et de la fameuse *Vallisnérie spirale*, qui croît ici en abondance. Il nous est arrivé souvent de prendre plus de cent *Caridina* d'un seul coup de filet, mais alors il s'en fallait de beaucoup que tous les individus eussent atteint l'âge adulte. Nous avons même remarqué, avec une certaine surprise, la rareté comparative de ces derniers, surtout pendant les mois les plus chauds de l'été. A peine nous est-il possible aujourd'hui (5 août) d'en pêcher deux ou trois dans une heure, tandis que pendant les mois d'avril, de mai et de juin, un quart d'heure suffisait pour nous en procurer une douzaine et même davantage. Nous avons aussi observé que nos Salicoques semblent affectionner certaines localités à l'exclusion de toutes les autres, mais qu'elles les abandonnent assez fréquemment pour se porter sur d'autres points. En général, elles paraissent préférer les endroits peu touffus, et elles se tiennent habituellement sur les bords du canal, où elles trouvent sans doute un abri contre une lumière trop vive, et une retraite contre les attaques de leurs nombreux ennemis.

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(1) Le nombre des spinules variant avec l'âge, on ne doit pas attacher trop d'importance à ce caractère spécifique.

(2) Afin de savoir si la *Caridina Desmarestii* ne pouvait vivre ailleurs que dans l'eau douce, nous avons mis quelques individus dans l'eau légèrement salée. Nous les y avons vus constamment périr au bout de peu de temps, et cela d'autant plus vite que le degré de salure était plus élevé. Il paraît donc certain que ces petits Crustacés ne remontent point les fleuves, comme le font l'*Alose*, le *Saumon*, la *Lamproie*, etc., et qu'ils vivent exclusivement dans les eaux douces, où on les trouve d'ailleurs toute l'année.

Parmi ces derniers, il faut compter surtout les *Ranâtres*, les *Népes*, les *Naucores*, les *Dytiques* et les larves du grand *Hydrophile brun* (*Hydrophilus piceus*). Ils font eux-mêmes leur proie de cette multitude d'Entomostracés (*Cyclops*, *Cyclopsine*, *Daphnia*) qui fourmillent dans les eaux où ils vivent (1), souvent même ils dévorent les cadavres putréfiés de leurs compagnons morts en captivité. Nous les avons vus aussi se nourrir très facilement, et pendant très long-temps, de diverses espèces de *Conferves* et de *Protococcus*, qui coloraient en vert leur canal digestif. (2)

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(1) Nous avons trouvé très fréquemment des touffes énormes de *Verticella arbuscula* (Dujardin), attachées sur les antennes et la carapace des individus de tous les âges. Lorsque l'animal nage chargé de ces infusoires, il paraît couvert d'un panache ondoyant dont les mouvemens, pleins de grâce, ajoutent encore à l'élégance de ce petit Crustacé.

(2) Degeer rapporte (*Mémoire sur les Insectes*, tome VII, page 36), qu'il a vu des Ecrevisses de rivière manger du pain, des légumes, des fruits. Il ajoute qu'elles se nourrissent aussi,

Moyens employés pour conserver nos Salicoques en vie. Tous les observateurs ont parlé de la difficulté qu'on éprouve à conserver long-temps en vie les Crustacés en général, et notamment les Ecrevisses. De Geer avoue lui-même qu'il n'a jamais pu y parvenir, quoiqu'il eût soin de renouveler tous les jours l'eau des vases où il les renfermait. Réaumur nous apprend qu'il était obligé de les tenir dans des viviers placés dans l'eau courante. Pendant long-temps nous avons désespéré nous-mêmes de pouvoir faire des observations suivies sur nos *Caridina;* en vain les mettions-nous dans une grande quantité de liquide, en vain prenions-nous la précaution de ne leur donner que de l'eau du canal du Midi, nous voyions presque constamment périr, au bout de quelques jours, les individus dont nous avions à cœur d'étudier les habitudes.

De nombreuses expériences nous ont convaincu que, toutes choses égales d'ailleurs, les plus jeunes supportent beaucoup mieux la captivité que les individus adultes, les femelles sans œufs beaucoup mieux que les femelles *ovigères*. Enfin, une observation attentive des habitudes de ces petits Crustacés nous a suggéré les moyens les plus avantageux pour arriver au but que nous nous proposions.

Plus d'une fois nous avions vu des Salicoques se tenir à la surface de l'eau du vase qui leur servait de prison, et s'attacher aux plantes et aux morceaux de bois qui s'y trouvaient flottans. Ne doutant pas qu'ils ne vinssent occuper la couche la plus superficielle afin de respirer l'air qui y était dissous en plus grande abondance que dans le reste de la masse, nous avons eu l'idée de les placer dans des vases à large ouverture, et de ne verser dans ces vases que la quantité d'eau nécessaire pour recouvrir le corps des individus soumis à notre observation.

Un moyen aussi simple a réussi au-delà de nos espérances, et tandis que, dans les commencemens, nous perdions au bout

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même en liberté, des plantes qui croissent au bord de l'eau, preuve évidente que les Crustacés sont moins exclusivement carnivores, qu'on ne le croit communément, et qu'Aristotea eu jusqu'à un certain point raison de dire qu'ils sont omnivores : και γὰρ ταῦτα (τὰ μαλακόστρακα) παμφάγα. ‘*Histoire des animaux*, livre VII, page 460. Traduction de Camus.)

de trois, de deux et même d'un jour, quand la chaleur était très forte (31° à 35° c.), les femelles dont il nous importait de suivre le développement des œufs, aujourd'hui nous n'en perdons plus une seule, pourvu que nous renouvelions de temps en temps la couche d'eau peu profonde où nous les élevons, et que nous ayons soin de les soustraire à l'influence directe des rayons du soleil.

Si je suis entré dans tous ces détails, quelque minutieux qu'ils puissent paraître au premier d'abord, c'est que j'espère qu'ils serviront peut-être à épargner à d'autres observateurs beaucoup de peines inutiles et de cruels désappointemens. D'ailleurs ne ressort-il pas évidemment de ce qui précède que

1° Les *Caridines*, et probablement aussi tous les Crustacés décapodes, ont besoin de respirer une grande quantité d'air;

2° Que ce besoin se fait d'autant plus vivement sentir, que la température est plus élevée;

3° Qu'il est plus impérieux chez les femelles qui ont des œufs que chez celles qui n'en portent pas;

4° Enfin, que sous les deux derniers points de vue, ces invertébrés ressemblent aux animaux plus élevés qu'eux dans la série, notamment aux Batraciens (1) et aux Vertébrés qui se livrent aux soins de l'incubation.

Expériences sur la respiration des Caridines. Quant au mécanisme de la respiration lui-même, et au rôle que joue l'eau dans cet acte important, ce n'est point ici le lieu de nous en occuper. D'ailleurs, nous n'aurions rien à ajouter aux beaux travaux que MM. Flourens (2) et Milne Edwards (3) ont publiés à ce sujet, et nous ne pouvons mieux faire que de renvoyer aux Mémoires de ces illustres académiciens. Disons toutefois que nous avons répété, pour notre instruction particulière, quelques-unes de leurs expériences les plus concluantes, et que nous sommes demeuré convaincu de leur parfaite exactitude. Ainsi, en enlevant la deuxième paire de mâchoires, et même en nous bornant à tenir immobile l'espèce de palette ou valvule attachée à son côté extérieur, nous avons fait cesser tout-à-coup le courant formé par l'eau qui s'échappait du canal efférent des branchies. Ce courant recommençait quand nous permettions à la valvule de reprendre ses mouvemens accoutumés.

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(1) Williams Edwards : *De l'influence des agens physiques sur la vie.*

(2) *Expériences sur le mécanisme de la respiration des Poissons*, Annales des Sciences naturelles, tome XX, page 5, 1^{re} série.

(3) *Recherches sur le mécanisme de la respiration chez les Crustacés*, Annales des Sciences naturelles, 2^e sér., t. XI, p. 129.

Nous avons aussi voulu savoir jusqu'à quel point nos Caridines pouvaient respirer hors de l'eau, ou mieux, combien de temps elles vivraient dans un vase dont les parois et le fond étaient maintenus dans un état d'humidité constante, et nous avons vu ces petits Crustacés se conserver pleins de vie pendant près de deux jours (1). Notons ici que les individus soumis à cette expérience n'avaient pas encore atteint l'âge adulte, et que la température du lieu où ils étaient placés s'élevait pendant la durée de l'expérience de 30° à 33° cent. Concluons donc, avec MM. Audouin et Milne Edwards, que les branchies des Crustacés peuvent servir à la respiration aérienne comme elles servent à la respiration aquatique, mais qu'en général le dessèchement qu'elles éprouvent à l'air agit comme une cause puissante de mort. (2)

Ponte. Quoique nos observations sur le Crustacé qui fait l'objet de ce Mémoire aient duré plus d'un an, quoique nous ayons acquis la certitude que la ponte a lieu chez les femelles à différentes époques (3), nous n'avons jamais pu être témoin de cette opération. Nous savons seulement que les œufs une fois pondus s'attachent aux fausses pattes de la femelle, et que leur développement s'opère dans l'espace de vingt à vingt-cinq jours, suivant le degré plus ou moins élevé de la température. Le nombre des œufs lui-même varie de 3 à 400.

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(1) On sait, d'après les belles expériences de M. Floureus, que, si leurs branchies sont maintenues humides, les Poissons continuent à respirer dans l'air et y absorbent exactement la même quantité de fluide atmosphérique qu'en respirant dans l'eau. La respiration aquatique diffère donc moins de la respiration aérienne qu'on ne le croirait au premier abord. Aussi, J. Muller fait-il observer avec juste raison qu'une surface humide est nécessaire même pour la respiration pulmonaire. *Elements of Physiologie, translated by* W. Baly, 2^e^ édition, tome 1, page 331.

(2) *Mémoire sur la respiration aérienne des Crustacés*, Annales des Sciences naturelles, tome XV, page 85, 1^re^ série.

(3) Nous avons trouvé des femelles portant des œufs depuis le mois d'avril jusque vers la fin du mois d'août.

Accouplement. Malgré tout notre désir de substituer des faits positifs aux simples conjectures que possède la science sur l'accouplement des Crustacés, il nous a été également impossible de rencontrer deux *Caridines* se livrant à l'acte de la reproduction.

Mue. Quant à la mue, qui s'effectue presque toujours pendant la nuit, nous l'avons suivie avec toute l'attention que nous a permise la rapidité avec laquelle elle s'opère, et en comparant nos observations avec celles que Réaumur a publiées il y a cent quarante ans sur le même sujet (1), nous avons eu une nouvelle occasion d'admirer les soins scrupuleux et la rigoureuse exactitude qu'il apportait dans l'art si difficile d'interroger la nature et de surprendre ses secrets.

Comme l'Ecrevisse fluviatile, la Caridine de Desmarest, au moment de muer, se couche sur le côté, et perd en grande partie sa transparence habituelle. Assez long-temps elle reste presque immobile, puis elle est agitée de quelques mouvemens convulsifs pendant lesquels son abdomen se recourbe et s'étend à son tour; enfin, on la voit frotter ses pattes les unes contre les autres, soulever sa carapace, détendre sa queue comme un ressort, et quitter sa dépouille avec la promptitude de l'éclair. Quelque difficile que soit cette opération, elle ne dure pas ordinairement plus d'un demi-quart d'heure, et il est assez rare qu'elle entraîne immédiatement la mort de l'animal, lorsque celui-ci est pourvu de tous les organes extérieurs propres à l'âge adulte. Nous verrons plus tard qu'il n'en est pas de même de l'individu nouvellement éclos.

Quant à la dépouille elle-même, on la prendrait volontiers pour une autre *Caridine*, si sa transparence parfaite, son peu de consistance, et surtout la déchirure des membranes qui l'unissaient à la carapace, à l'abdomen ne s'opposaient à cette erreur.

Tous les organes extérieurs de l'animal y sont fidèlement représentés comme autant de moules où ces organes auraient pris leurs formes distinctives; on y trouve même plusieurs parties intérieures, savoir, l'œsophage, l'estomac avec ses nombreux cartilages et une partie de l'intestin; nouveau fait qui, ajouté à beaucoup d'autres, prouve, de la manière la plus incontestable, que le tube digestif n'est autre chose que la peau repliée à l'intérieur, et qu'il est soumis, chez un assez grand nombre d'animaux, à des rénovations semblables à celles qu'éprouvent les tégumens extérieurs.

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(1) Mém. de l'Acad. des Sc., années 1712 et 1718.

On nous demandera sans doute comment notre Salicoque peut retirer de leurs fourreaux ses pattes didactyles dont le carpe et la main sont beaucoup plus gros que les articles précédens. Nous avouons franchement que nous n'avons pas été témoin du procédé qu'emploie l'animal; mais, à en juger par sa dépouille, nous ne doutons pas qu'il ne parvienne à dégager les pattes en question par un moyen tout-à-fait analogue à celui auquel l'Ecrevisse a recours. En effet, en examinant avec soin sa dépouille, nous avons vu les tégumens de la main déchirés à l'endroit que nous avons appelé le talon : la membrane qui unit le carpe à la pince était en grande partie brisée; enfin le carpe lui-même et les autres articles plus rapprochés du corps étaient fendus longitudinalement et comme divisés en deux parties égales. Quant à la matière gluante qui, selon Réaumur, réunit et colle les deux moitiés de ces étuis lorsque la mue est terminée, il paraît qu'elle n'existe pas chez nos Salicoques. Ce qu'il y a de certain, c'est qu'à un grossissement même assez faible, nous avons toujours pu apercevoir la fente qui divise les fourreaux, et nous n'avons jamais éprouvé la moindre difficulté à isoler les deux portions qui les composent.

D'après les faits que nous venons d'exposer, il est facile de juger l'accord qui règne entre nos observations et celles de Réaumur. Cependant, outre la particularité que nous avons signalée en dernier lieu, elles en diffèrent encore sur un autre point beaucoup plus essentiel. L'illustre auteur des *Mémoires pour servir à l'histoire des Insectes* assure qu'au moment de la mue l'ancien estomac de l'Ecrevisse devient la proie de celui qui s'est nouvellement formé (1). Pour se convaincre qu'il ne se passe rien d'aussi merveilleux chez la *Caridine Desmarestii*, on n'a qu'à examiner avec soin sa dépouille, et l'on est sûr d'y rencontrer toujours l'ancien estomac de l'animal.

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(1) Mém. de l'Acad. des Sc., année 1712, page 239.

Enfin une dernière différence sur laquelle nous devons attirer un instant l'attention du lecteur, c'est celle qui est relative au nombre des mues que subit notre Salicoque. D'après Réaumur, l'Ecrevisse ne change de peau qu'une fois par an, et cette opération n'a jamais lieu avant le mois de mai ni après celui de septembre; or, nous avons vu de jeunes *Caridines* se dépouiller en avril et même au mois de novembre; nous pouvons même établir en principe que ces animaux muent très souvent, tant qu'ils n'ont pas atteint l'âge adulte; on en jugera par les tableaux suivans :

Un individu que je conservais depuis le 29 mai, et qui avait déjà changé de peau plusieurs fois au moment où je le mis en observation (9 juillet 1841), mua encore dans la nuit du 15 au 16 juillet.

Autre mue dans la nuit du 25 au 26 *id.*
Autre mue dans la nuit du 4 au 5 août.
Autre mue dans la nuit du 14 au 15 *id.*
Autre mue dans la nuit du 24 au 25 *id.*
Je n'ai pas poussé plus loin cette observation.

Sur un autre individu à-peu-près du même âge, voici ce que j'ai observé :

Mue dans la nuit du 10 au 11 juin.
Autre mue dans la nuit du 18 au 19 *id.*
Autre mue pendant le jour le 26; mort le même jour.

Ces deux tableaux suffiront pour prouver combien les mues sont fréquentes chez les jeunes *Caridines.* Le lecteur attentif aura même sans doute remarqué que ces mues s'effectuent presque toujours pendant la nuit et à des intervalles tellement réglés (de dix en dix jours pour le premier individu, de huit en huit pour le second), qu'il est possible d'annoncer d'avance le moment où l'animal se débarrassera de son ancien squelette tégumentaire : c'est en effet ce qui nous est arrivé souvent. Hâtons-nous d'ajouter que les individus adultes ne se dépouillent pas aussi fréquemment que les jeunes : peut-être même ne changent-ils de peau qu'une fois chaque année. La difficulté que nous avons éprouvée jusqu'en ces derniers temps, pour les conserver en vie, ne nous a pas permis d'éclaircir ce point de fait sur lequel nous reviendrons peut-être un peu plus tard (1). Tout ce que nous pouvons avancer avec certitude, c'est que les femelles muent presque toujours immédiatement après l'éclosion des œufs, très rarement deux ou trois jours plus tard, quelquefois enfin pendant ou avant l'éclosion elle-même. Dans ces deux derniers cas, les œufs qui restent adhérens à la dépouille, quelque avancés qu'ils soient, meurent infailliblement. Disons, en terminant, que la nouvelle peau dont l'animal s'est revêtu a généralement une couleur différente de l'ancienne, et ne tarde pas à acquérir la consistance qui lui est propre; mais il nous est impossible d'adopter ici l'explication de Réaumur, car nous n'avons trouvé dans l'estomac de nos Caridines rien qui ressemblât à ces concrétions pierreuses que l'on désigne si improprement sous le nom d'yeux d'écrevisses, et à la dissolution desquelles l'illustre auteur des *Mémoires pour servir à l'histoire des Insectes* attribue l'induration des nouveaux tégumens.

Reproduction des pattes et des antennes. On sait que l'*Astacus fluviatilis*, et beaucoup d'autres Crustacés, possèdent l'étonnante faculté de reproduire leurs pattes et leurs antennes mutilées à dessein ou bien par accident. Des expériences directes m'ont convaincu que la *Caridina Desmarestii* jouit aussi de ce singulier privilège.

Le 15 juillet, j'enlevai à un individu de moyenne grandeur les trois derniers articles de la dernière patte du côté droit ; le 26, ces trois articles (fig. 34, *a, b, c*) s'étaient reproduits, ils étaient beaucoup plus transparens que les autres; la substance en semblait comme grenue, et l'on apercevait quelques poils à la naissance de chaque nouvelle articulation.

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(1) Nous possédons cependant une observation qui semblerait prouver que les individus en état de se reproduire subissent plusieurs mues chaque année. Une femelle, dont les œufs étaient éclos le 23 juillet, et qui avait changé de peau le 26, répéta la même opération le 3 août. Mais cette femelle, dont la première mue avait été postérieure de trois jours à l'éclosion des œufs, et qui, sous ce rapport, se trouvait dans un cas exceptionnel, ne pouvait-elle pas encore offrir une exception, en muant une seconde fois le 3 août ?

Le 7 juillet, je casse la pince droite d'un autre individu de même âge à-peu-près que le précédent. Il mue dans la nuit du 8 au 9, et je vois, avec une extrême surprise, qu'il s'est lui-même cassé tous les articles qui précèdent la main jusqu'au trochanter (1). Le 14 juillet, le sommet de cet article est rougeâtre, et il porte deux mamelons enveloppés d'une membrane hyaline et très mince; le 20, j'aperçois trois articles bien distincts (voy. fig. 35); le supérieur (*a*) forme déjà la pince, et il est muni à son sommet de quelques poils qu'on aperçoit à travers la membrane. La longueur de la patte ainsi reproduite est de 1 millim. 3. L'individu meurt le lendemain, probablement parce qu'il était resté trop long-temps sous le microscope.

Mon intention n'étant pas de donner ici une histoire complète de la *Caridina Desmarestii*, mais bien de constater la réalité de ses métamorphoses, je ne m'étendrai pas davantage sur la reproduction des pattes de ce petit Crustacé. D'ailleurs ce phénomène offre, jusque dans ses moindres détails, tant de ressemblance avec ceux que Réaumur a si bien étudiés chez l'Ecrevisse, que je ne saurais mieux faire que de renvoyer à l'intéressant Mémoire de cet habile et consciencieux observateur.

Sens. Le toucher semble résider surtout dans les antennes, et l'on voit l'animal les agiter au moindre contact. Le goût et l'odorat nous ont paru aussi développés que chez l'Écrevisse elle-même. L'ouïe existe aussi, à n'en pas douter, chez notre Caridine, mais nous ignorons quel en est le siège spécial.

Quant à la vue, elle est excellente : il suffit de s'approcher du vase où l'on tient nos Crustacés captifs, pour les voir fuir sous les herbes ou sauter au-dessus du vase lui-même, lorsqu'il est peu profond.

Locomotion. Outre les sauts rétrogrades et souvent très étendus que la *Caridina Desmarestii* exécute en débandant son abdomen préalablement courbé en arc, elle peut encore nager avec vitesse au moyen de ses fausses pattes, et marcher avec aisance en s'appuyant principalement sur ses trois dernières paires de pieds thoraciques, les pattes didactyles étant alors presque toujours recourbées vers la bouche. Les poils et les épines nombreuses dont ces organes sont garnis, lui permettent aussi de se cramponner facilement aux corps étrangers, et surtout aux plantes, qui lui servent tout à-la-fois d'alimens et d'abri.

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(1) On sait que Réaumur a fait la même observation sur l'Écrevisse fluviatile.

Accroissement et durée de la vie. Malgré la fréquence des mues, l'accroissement de nos Salicoques s'effectue avec lenteur: la durée en est probablement illimitée. Celle de leur vie m'est inconnue.

DEUXIÈME PARTIE.

DÉVELOPPEMENT DE L'ŒUF ET MÉTAMORPHOSES.

Examiné dans l'ovaire d'une femelle dont les petits étaient éclos depuis douze jours, les œufs nous ont présenté divers degrés de développement que nous ferons brièvement connaître, avant de parler des changemens qu'ils subissent hors du lieu où ils ont pris naissance.

Parmi ces œufs, les uns ressemblaient à une simple vésicule presque lenticulaire (Pl. 4, fig. 45) renfermant des globules d'un très petit diamètre (*b*) (vitellus), et offrant à-peu-près dans leur milieu une autre vésicule (*c*) (vésicule de Purkinje?) parfaitement transparente (fig. 46). Plus tard, les globules sont beaucoup plus gros, plus distincts, et se trouvent réunis en plus grande quantité vers le centre que du côté de la circonférence (fig. 47).

Plus tard encore, ils se répandent uniformément dans tout l'intérieur de la vésicule qui leur sert d'enveloppe. En cet état (fig. 48), ils commencent à se montrer légèrement colorés en vert, mais ils n'ont encore perdu ni toute leur transparence, ni leur forme arrondie. A mesure que les globules vitellins deviennent plus nombreux, on les voit diminuer de diamètre: l'œuf s'allonge, se fonce en couleur, et ne conserve à-peu-près transparent qu'un espace ordinairement rapproché du gros bout (fig. 49). Enfin, quand le développement est encore plus avancé, c'est-à-dire quand l'ovaire forme deux longues grappes vert-foncé situées au-dessus du foie et du tube digestif, les œufs sont complètement compactes, et prennent en se pressant les uns les autres les formes les plus variées. La figure 50 représente un de ces œufs encore logé dans la masse ovarique où il a pris naissance, et par conséquent enveloppé par les parois de l'ovaire lui-même.

A ce degré de son développement, l'œuf nous a paru formé uniquement d'une membrane très mince, recouvrant un amas de globules vitellins logeant entre eux des gouttelettes huileuses, ou du moins regardées comme telles par la plupart des embryologistes.

Une fois pondus, les œufs s'attachent aux fausses pattes de la femelle (fig. 19, *e*), et se recouvrent en même temps d'une membrane commune que l'on peut appeler avec Burdach *membrane nidulante.* Cette membrane (fig. 55, *a*), sans organisation apparente, se resserre aux deux extrémités de chaque œuf, et se prolonge sous la forme d'un ou deux filamens plus ou moins gros (*b*, *c*) pour aller recouvrir les œufs voisins de la même manière; de sorte qu'en ne l'étudiant point avec assez d'attention, l'on serait facilement disposé à croire que tous les œufs adhèrent ensemble par de simples cordons semblables à ceux que Roesel a figurés dans ses mémoires sur l'Écrevisse.

Débarrassés de cette enveloppe commune, les œufs, dont la forme est alors elliptique, apparaissent à l'œil nu comme des grains verdâtres de la grosseur d'une graine de pavot. En étudiant leur composition au microscope, nous y avons trouvé :

1° Un chorion assez épais et parfaitement transparent;

2° Une couche d'albumen si mince, que nous avons longtemps douté de son existence;

3° Une membrane vitelline très délicate;

4° Une masse de globules vitellins entremêlés de gouttelettes d'huile très grosses et très nombreuses, et d'une foule de globules plus petits, qui constituent probablement le *blastoderme* ou *membrane proligère*, qu'il nous a été toutefois impossible d'apercevoir d'une manière bien distincte.

Un de ces œufs observé le 22 juillet, deux ou trois jours après la ponte, n'avait pas encore subi de modifications très importantes. Le 25, on distinguait seulement à l'une de ses extrémités un croissant (*a*) transparent, dont les cornes étaient tournées vers le bout opposé (fig. 56).

Pour les changemens ultérieurs de l'œuf, je vais transcrire ici les notes de mon journal.

27 juillet. Au lieu d'un simple croissant, on aperçoit aujourd'hui une masse blanchâtre, comme granuleuse et diaphane (fig. 57), divisée par trois lignes transversales en quatre portions d'inégale étendue. La plus grosse (*a*), qui est en même temps la plus inférieure, représente l'abdomen et la queue de l'embryon naissant. Un petit mamelon, percé à son sommet, indique la place de l'anus (*b*). Les trois autres bandes transversales (*c, d, e*) sont les indices des pattes thoraciques de la larve future. Une ligne obscure (*l*), placée en avant de ces mêmes bandes, marque l'endroit où la partie postérieure de la carapace apparaîtra bientôt. On voit même qu'au-dessus et de chaque côté de cette ligne, les globules vitellins ont considérablement diminué de diamètre, et que la place qu'ils occupent est un peu plus transparente que le reste de l'œuf, où les globules sont, au contraire, assez gros et mêlés d'une foule de gouttelettes huileuses de diamètres différens, mais considérables pour certaines d'entre elles. Écrasé sous le compresseur, l'œuf laisse échapper les globules qu'il contient, mais un grand nombre de ceux-ci ont déjà perdu en partie leur transparence, leur surface paraît comme granuleuse ; enfin ils sont beaucoup plus adhérens entre eux qu'ils ne l'étaient auparavant.

29 juillet. Au lieu de trois lamelles ou bandes transversales, j'aperçois aujourd'hui six appendices latéraux (*a, b, e, d, e, f*, fig. 58), dont les supérieurs sont surmontés d'une masse blanchâtre et transparente (*i*) d'où semblent partir deux autres appendices (*g, h*) dirigés vers la partie inférieure de l'œuf. Ces derniers ne sont autre chose que les antennes externes et internes : la masse qui les surmonte constitue la portion céphalique de l'embryon (*i*). Les trois appendices latéraux récemment formés (*f, e, d*) représentent les mandibules et les deux paires de mâchoires ; ceux qui les ont précédés dans l'ordre d'appari-

tion sont, avons-nous dit, les rudimens des pattes thoraciques (*a, b, c*). Notons, comme un fait essentiel, que les deux plus inférieurs sont déjà bifurqués ou plutôt bilobés. Quant à la portion abdominale, elle s'est allongée et recourbée en avant et en dessous du côté de la tête. Le canal intestinal (*n*) existe sous la forme d'un tube transparent renflé à son point d'origine. Le cœur ne paraît pas encore; enfin la carapace (*l*) commence évidemment à recouvrir la base de l'abdomen, des pattes thoraciques, des mâchoires et des mandibules.

Placé sur le porte-objet du microscope, l'embryon s'y décompose presque au même instant, et il est à peine possible de dessiner une seule de ses pattes sans la voir se déformer en moins d'une minute et diffluer sur-le champ, comme le font les Infusoires au moment de mourir. Les globules vitellins adhèrent pour la plupart les uns aux autres; plusieurs d'entre eux ont un volume considérable; il en est de même des gouttelettes huileuses.

31 juillet. Deux organes nouveaux apparaissent aujourd'hui, ce sont l'œil, qui ressemble à une simple tache de couleur brune, et le cœur, qui se présente sous la forme d'un fuseau creux et transparent situé au-dessus du canal digestif : il ne bat pas encore.

1^er^ août. Le cœur (fig. 59, *q*) bat 35 fois par minute : la tache oculaire (*j*) s'est allongée et a pris une teinte plus brune. La portion céphalique (*i*) s'est agrandie, les antennes (*g, h*) et les pattes thoraciques se sont allongées, celles-ci se sont distinctement divisées en deux branches. Les appendices buccaux (*d, e, f*) rappellent maintenant, par leur forme, celle qu'avaient les pattes au moment où elles commençaient à se développer. La rapace (*l*) est comme guillochée; ses parties latérales atteignent maintenant le niveau des taches oculaires. Il en est de même de la queue (*p*), qui se montre comme bilobée ou du moins comme pourvue d'une forte échancrure. Une tache obscure (*v*) y indique la place de l'anus. La masse vitelline (*t*) a considérablement diminué depuis trois jours; les globules les plus rapprochés de la naissance du tube digestif sont très petits, transparens et colorés légèrement en rose; ce tube lui-même s'est élargi comme pour les englober. Des poils gros, courts et d'une transparence telle qu'on peut à peine les apercevoir, existent à l'extrémité de la queue, des pattes et des antennes.

Retiré de l'œuf, l'embryon difflue avec la plus grande facilité; au bout d'une minute, il n'offre plus qu'une masse informe et tout-à-fait méconnaissable : aussi m'a-t-il fallu sacrifier plus de vingt individus pour achever, ou plutôt pour composer pièce par pièce celui qui est représenté figure 63.

Le décrire ici, ce serait le décrire deux fois; aussi nous contenterons-nous de renvoyer à l'explication des figures, en ayant soin de faire observer seulement qu'à cette époque de son existence l'animal peut être divisé en deux moitiés à-peu-près égales, l'une pour la tête et le thorax, l'autre pour l'abdomen et la queue. Nous verrons bientôt régner une étonnante disproportion entre ces deux parties. Notons encore que, desséché sur le porte-objet, le corps de l'embryon y prend déjà en quelques points cette couleur rouge que nous avons déjà signalée chez l'adulte. Inutile de dire que chez celui-ci la teinte est plus foncée.

3 août, quatre heures du soir. La queue atteint l'extrémité supérieure de l'œuf. La tache anale est maintenant placée entre les deux yeux; sa couleur est d'un rouge brun. Deux autres taches de la même nuance se trouvent sur chacun des lobes de la queue. Les yeux sont plus noirs, plus gros et plus éloignés du vitellus, qui s'est sensiblement réduit, et a laissé à découvert une plus grande partie de la tête et de la carapace. Le cœur bat environ 120 fois par minute; il se prolonge en avant et en arrière pour former les artères ophthalmique et abdominale supérieure. Les mouvemens de systole et de diascole se font sentir dans cette dernière jusque vers le voisinage des yeux. La teinte rougeâtre des globules situés au commencement du canal intestinal est bien plus prononcée. L'intestin exécute déjà quelques faibles mouvemens ondulatoires; l'embryon lui-même est agité de temps en temps par de brusques secousses assez semblables à des trémoussemens. Bien que son développement soit déjà très avancé, il ne peut encore se passer de l'incubation maternelle, car tous les œufs que j'ai isolés de la femelle qui les portait sont morts dans l'eau au bout de quelques heures.

5 août. La queue (fig. 60, *p*) s'est recourbée au-dessus de la tête. On aperçoit très distinctement, à travers les membranes de l'œuf, les poils (x), dont elle est garnie à son extrémité. On voit aussi les poils placés au bout des pattes (y) et des antennes (z), qui se sont beaucoup allongées, et sur lesquelles il existe déjà quelques articulations, il est vrai, peu distinctes. Les corps vitrés (k) commencent à paraître autour de la tache oculaire (j), qui est maintenant d'un beau noir. Les globules vitellins paraissent comme réunis en plusieurs petites masses ou lobules verdâtres; ceux qui semblaient englobés dans l'intestin se sont revêtus d'une mince membrane et sont presque toujours en mouvement; ce sont les lobes postérieurs du foie qui commencent à se former. Le labre existe, mais il est caché par l'abdomen; sauf l'espace occupé par l'œil et la masse vitelline, le reste de l'œuf est d'une transparence parfaite. Le cœur bat 200 à 210 fois par minute, et cependant la circulation des globules sanguins n'est pas encore établie; l'intestin est vide, mais il exécute des mouvemens vermiculaires très marqués. Extrait de l'œuf et mis dans une goutte d'eau, l'embryon (fig. 64) y meut déjà son abdomen comme il le fera plus tard, mais il ne peut y vivre au-delà de quatre minutes; la diffluence n'a plus lieu, bien que tous les organes se soient un peu déformés au bout de deux ou trois minutes après la mort de l'animal. En l'examinant avec attention lorsqu'il est encore en vie, on voit qu'il est enveloppé d'une membrane excessivement mince qui suit toutes les sinuosités du corps, forme une espèce d'étui autour de tous ses appendices et enveloppe même les poils placés à leur extrémité (1). Elle se déchire assez souvent quand l'animal est sur le porte-objet : alors les poils s'étalent tout-à-coup; séparé de la mère, l'œuf ne peut éclore.

8 août. L'abdomen (fig. 61 et 62, *o*) commence à présenter

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(1) Cette membrane, qui persiste quelquefois plusieurs minutes après l'éclosion, a été aperçue par le capitaine Ducasse sur la larve du *Cancer mœnas.* On ne peut la considérer comme l'analogue de celle que Dugès a observée sur le fœtus de la *Mante religieuse* et du *grand Hydrophile*, et qu'il a désignée sous le nom d'*amnios*; car entre elle et le *chorion* se trouve une autre membrane dont nous allons parler dans un instant, et qui mériterait peut-être mieux la dénomination d'*amnios* ou de *membrane amniotique.*

quelques segmens bien distincts, et la queue (*p*) recouvre presque la moitié antérieure de la portion tergale de la carapace. La tache anale (*v*) est d'un beau rouge; on aperçoit, à la naissance du segment caudal, une ligne transversale plus large (*v'*), mais colorée de la même manière. Deux lignes d'un rouge brun (1, 2) paraissent situées, l'une vers le milieu, l'autre à la partie postérieure de la masse vitelline (*t*); les yeux (*j*) sont manifestement composés et d'un volume encore plus disproportionné à celui de la tête qu'ils ne l'étaient les jours précédens; la carapace est munie à son bord antérieur d'une épine très courte (*m rostre*); l'appendice buccal qui précède la première patte bifide (deuxième mâchoire *d*) s'est bifurquée; les pattes bifides elles-mêmes sont devenues très longues (*a, b, c*); il en est de même des antennes, dont les extérieures sont presque aussi longues que la carapace elle-même (*l*).

Le cœur (*q*) bat environ 300 fois par minute; mais la circulation n'existe pas encore. La portion du vitellus la plus rapprochée du cœur est comme ballottée sans cesse, tantôt dans un sens, tantôt dans un autre. Les plus petits globules vont et viennent le long du canal intestinal. Celui-ci s'est beaucoup avancé vers la tête, et la masse vitelline (*t*), devenue un peu transparente à la place qu'il occupe, conserve encore ailleurs sa couleur verdâtre et à-peu-près la même opacité. Evidemment elle est divisée en plusieurs portions ou lobules constituant un foie (*u*), dans lequel on distingue de nombreuses gouttelettes d'huile. L'animal meut assez souvent sa queue, ses pattes et ses antennes.

Parvenu à ce point de son développement, l'œuf peut éclore lors même qu'on le soustrait à l'influence maternelle, et l'éclosion a lieu un ou deux jours après. Aucun changement notable ne s'y fait remarquer dans ce court intervalle, si ce n'est que la masse vitelline diminue de plus en plus. Au moment de la naissance, elle se réduit à quelques globules accompagnés de grosses gouttes huileuses.

10 août. Les œufs laissés à la mère éclosent les uns dans la nuit du 9 au 10, les autres dans la journée du 10 août, c'est-à-dire après 20 ou 21 jours d'incubation.

La manière dont l'éclosion se fait mérite de fixer un instant notre attention. Si nous plaçons sur le porte-objet du microscope quelques œufs semblables à celui que nous avons représenté fig. 61, en ayant soin de la mettre dans une quantité d'eau suffisante pour les maintenir en vie, nous verrons avec un peu de patience le *chorion* se déchirer sur quelques-uns d'entre eux, et l'embryon en sortir brusquement encore enveloppé d'une tunique membraneuse, d'une transparence extrême et d'une assez grande élasticité, pour se prêter à tous les mouvemens du jeune individu, et suivre toutes les sinuosités qui sont alors la conséquence de ce mouvement, alors très prononcé, surtout du côté de la queue, des pattes thoraciques et des mâchoires extérieures. Celles-ci s'agitent déjà comme chez la larve nouvellement éclose. Du reste, tous ces organes et le corps lui-même conservent à-peu-près la position qu'ils avaient dans l'œuf, quand le chorion en faisait partie. Seulement, comme la tunique qui les enveloppe s'est agrandie dans tous les sens, les divers appendices qui appartiennent à la face ventrale (et notons bien que tous sont dans ce cas) se sont un peu écartés les uns des autres, et sont conséquemment devenus plus distincts. Cette tunique contient-elle un liquide qui baigne le fœtus, et mérite-t-elle le nom d'amnios, que nous serions tenté de lui donner? Nous le croyons; mais le défaut d'observations précises nous empêche de rien affirmer à cet égard. Quoi qu'il en soit, ordinairement l'animal brise cette frêle enveloppe quelques minutes après que le chorion s'est lui-même entr'ouvert, et il paraît alors entouré de cet *étui* dont nous avons déjà parlé, et qui pourrait bien n'être autre chose que la membrane vitelline elle-même; mais il reste très peu de temps en cet état. Au bout d'une minute tout au plus, il brise la dernière enveloppe qui l'entoure, les poils s'étalent, ses mouvemens deviennent très agiles, et il se montre sous la forme où on le voit représenté fig. 65. (1)

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(1) Il n'est peut-être pas inutile de faire observer qu'au moment de l'éclosion, les œufs sont sensiblement plus gros que dans les premiers jours de l'incubation. La membrane qui entoure l'animal en forme d'étui, ne pourrait-elle pas, dès-lors, être considérée comme le résultat d'une première mue qui commence à s'opérer dans l'œuf?

Avant de le décrire, jetons un coup-d'œil d'ensemble sur les phénomènes qui se sont offerts à notre examen pendant le développement de l'œuf, et cherchons à tirer les conséquences qui semblent découler des faits que nous avons observés. Nous avons vu tous les organes, même les yeux et les antennes, qui occuperont plus tard la face dorsale du corps, se former à sa face ventrale. Nous avons vu une ressemblance frappante exister entre tous les appendices au moment où ils commencent à paraître, et se conserver encore long-temps après leur apparition. Ainsi donc, s'il est vrai, comme nous le présumons, que les pattes bifides du fœtus se transforment plus tard en pattes manducatrices, l'histoire des *Caridina* fournit une preuve de plus en faveur de la théorie ingénieuse de H. Savigny sur l'intime analogie des organes locomoteurs et des organes de la mastication.

Maintenant, si l'on se présente à l'esprit les recherches de Rathke sur l'embryogénie de l'écrevisse, n'est-on pas frappé des singulières différences que l'on remarque dans le mode de formation de deux animaux si voisins sous tant d'autres rapports? Ainsi, en nous bornant aux particularités les plus essentielles, chez l'Écrevisse, les antennes, le labre et les mandibules apparaissent en même temps que le tubercule abdominal. Chez les Caridines, au contraire, la formation de l'abdomen est de beaucoup antérieure à celle des mandibules, du labre et des antennes. Les organes manducateurs de l'Ecrevisse se montrent avant ses pattes ambulatoires. Chez nos Salicoques, on observe précisément tout le contraire. Tous les appendices masticateurs sont au complet dans l'embryon de l'*Astacus :* il n'en existe que trois paires dans celui de la *Caridina.* Les pattes (1) de celui-ci sont bifides et ressemblent à celles des *Mysis ;* les pattes de celui-là sont simples et presqu'en tout semblables à celles de l'individu complétement formé. Enfin, elles sont au nombre de cinq paires chez le fœtus de l'Ecrevisse. On n'en compte que trois paires chez l'embryon de notre Salicoque. Quant à l'ordre d'apparition des yeux, du cœur, de l'intestin, du foie et de la carapace, il est à-peu-près le même chez ces deux animaux. Chez tous deux enfin, le *vitellus* ne pénètre point en entier dans le tube digestif, soit avant, soit après l'éclosion. Mais la différence, sans contredit, la plus étonnante et la plus essentielle à noter, c'est celle qui est relative à l'état sous lequel l'Ecrevisse et la Caridine apparaissent après avoir brisé les membranes de l'œuf; s'il faut en croire le docteur Rathke, à l'exception des parties génitales, la première vient au monde pourvue de tous ses organes et sous la forme qu'elle doit garder toute sa vie (1). La seconde, au contraire, acquiert un grand nombre de parties nouvelles et subit des modifications assez importantes pour que nous nous croyions autorisés à leur donner le nom de *vraies métamorphoses*.

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(1) Ou du moins les organes qui en tiennent lieu ; car les vraies pattes ambulatoires n'existent pas encore.

Description anatomique de la larve de Caridina Desmarestii. Décrivons d'abord la *Caridina Desmarestii* à sa sortie de l'œuf (voyez fig. 65 et 66). Ce qui frappe le plus à l'instant où on la voit se mouvoir avec agilité au sein de la goutte d'eau placée sur le porte-objet du microscope, c'est la grosseur de ses yeux, comparée au volume de la tête: c'est la longueur de l'abdomen et la forme du segment caudal qui le termine. La structure des antennes et des pattes n'est pas moins remarquable.

Yeux. Si l'on examine les yeux avec plus d'attention, l'on s'aperçoit que la composition en est essentiellement la même que chez l'adulte: seulement les pédoncules n'existent pas encore, et la cornée transparente, au lieu d'être, comme chez ce dernier, formée par la réunion d'un très grand nombre de facettes carrées, ne présente alors qu'une foule de cornées presque hémisphériques assez semblables à la cornée générale, dont elles font partie. Trois jours après la naissance, la cornée transparente offre toujours le même aspect (fig. 75 et 76).

Antennes. Les antennes ont une configuration assez différente de celle qu'elles offrent chez l'adulte. Ainsi, le pédoncule des extérieures (fig. 67, *a*, *b*) est représenté par une simple tige conique, portant à son sommet un poil cilié (*d*), qui deviendra le filament multiarticulé de l'animal parfait. Quant à l'appendice (*c*), qui recouvre l'antenne, il diffère peu de ce qu'il sera plus tard; mais son pédoncule est proportionnellement plus volumineux.

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(1) C'est sans doute par inadvertance que, dans le résumé qui fait partie de la physiologie de Burdach, le docteur Rathke a dit, tome III, page 116: « Pendant cette période (la quatrième), qui s'étend jusqu'à l'éclosion de l'Ecrevisse, il ne se forme plus rien de nouveau, *si ce n'est les organes génitaux* », et un peu plus loin, page 118: « *Il n'y a alors* (cinquième période, postérieure à l'éclosion) *aucune trace d'organes génitaux.* »

Un gros pédoncule de trois articles (fig. 68, *a*, *b*, *c*), supportant à son sommet un mamelon (*d*), terminé par trois poils recourbés et ciliés, et, à la base de ce mamelon, un poil plus gros (*e*), mais également cilié; telle est, à cette époque, la composition des petites antennes ou antennes internes.

Notons ici que les antennes de la larve sont proportionnellement beaucoup plus courtes que celles de l'animal parfait, caractère qui se retrouve aussi chez les insectes proprement dits.

Carapace. Quant à la carapace, elle ressemble à-peu-près à celle de l'adulte : seulement elle est plus large relativement à sa longueur, et le rostre (fig. 65 et 66, *m*) est rudimentaire et dépourvu d'épines.

Abdomen. L'abdomen se compose de six segmens d'autant plus longs qu'ils sont situés plus postérieurement (fig. 65 et 66). Chacun de ces segmens est presque cylindrique : on n'y voit pas ces singuliers prolongemens latéraux qui encaisseront plus tard la base des pattes natatoires; enfin le segment caudal (*p*) est simplement bilobé ou plutôt spatuliforme, et muni à son extrémité libre de cinq ou six poils semblables à ceux des antennes. L'anus (*v*) ouvert à sa base est entouré de stries rameuses couleur de vermillon.

Sauf le segment caudal que nous venons de décrire, nous n'avons encore trouvé entre l'animal parfait et l'animal sortant de l'œuf aucune différence essentiellement caractéristique. Si les traits qui les distinguent se bornaient à ceux que nous venons de faire connaître, nous n'hésiterions pas à dire que ces différences sont de peu de valeur, et s'expliquent facilement par les développemens successifs que subit le jeune individu. Mais en poursuivant notre examen, nous allons bientôt nous convaincre qu'il n'en est pas ainsi.

Etudions d'abord la structure de la bouche.

Structure de la bouche. Si l'on songe à la petitesse presque microscopique de l'animal (1) et à la transparence presque parfaite de toutes les parties de son corps, on concevra sans peine combien de difficultés nous avons rencontrées dans cette étude, et l'on ne s'étonnera pas que nous y ayons, à diverses reprises, consacré plus d'une semaine avant d'arriver à l'entière connaissance des organes que nous cherchions. Tant que nous avons conservé des doutes, nous les avons exprimés avec sincérité (2); aujourd'hui nous croyons pouvoir affirmer qu'il n'existe chez la *Caridina Desmarestii*, à l'état de larve, qu'un labre, une paire de mandibules et deux paires de mâchoires.

Labre. Le labre (fig. 69) est charnu, de forme presque circulaire, et recouvre en partie les mandibules.

Mandibules. Comparées à celles de l'adulte, les mandibules n'offrent rien de très particulier; aussi ne m'arrêterai-je pas à les décrire, persuadé que des dessins exacts peuvent suppléer à mon silence (voy. fig. 70 et 70 *bis*).

Mâchoires. Quant aux mâchoires, la première paire est formée de trois lobes inégaux, munis à leur bord interne de poils diversement configurés et de différentes longueurs (fig. 71 et 71 *bis, a*). La seconde paire (fig. 71 *bis, b*), également velue à son côté interne, est divisée d'abord en quatre lobes assez courts qui en forment la base; deux autres lobes plus grands, ou plutôt deux branches inégales obscurément multiarticulées, en occupent le sommet.

Telles sont les parties que nous avons pu trouver dans la bouche de la jeune *Caridine*, après des recherches long-temps soutenues et des observations répétées à divers intervalles sur plus de cinquante individus récemment éclos.

Passons maintenant à l'étude des appendices qui, à cette époque, servent essentiellement à la locomotion et peut-être aussi à la respiration.

Pattes bifides. A sa sortie de l'œuf, notre Crustacé ne possède que trois paires de pattes dont la forme, comparée à celle des pattes thoraciques ou ambulatoires de l'adulte, nous présente une foule de différences qui ressortiront de la description suivante :

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(1) Il n'a pas plus de 1,5 mill. de longueur, et l'abdomen en occupe à-peu-près les deux tiers. Sa largeur, prise au thorax, égale à peine un demi-millimètre.

(2) Voir l'extrait d'une lettre que nous avons eu l'honneur d'adresser à M. Flourens (*Comptes rendus de l'Institut*, 4 juillet 1842).

Toutes ces pattes ont essentiellement la même composition, c'est-à-dire qu'on y distingue un article basilaire (*a*) assez large, cilié à son côté interne, et portant à son sommet deux branches (*tige B* et *palpe C*) dont l'externe, qui est la plus longue, est divisée en quatre articles (*d*, *e*, *f*, *g*) de longueur inégale. Le dernier de ces articles est muni de deux poils très longs fixés à son extrémité. Deux autres poils semblables sont placés à sa base : deux poils plus courts se voient aussi à la base de l'article qui le précède.

La seconde branche est divisée à-peu-près de la même manière, mais les poils y sont différemment placés. Afin d'éviter des détails superflus, nous renvoyons à l'explication des figures qui accompagnent ce Mémoire. Ajoutons seulement que les pattes bifides sont d'autant plus courtes et d'autant plus larges à leur base, qu'elles sont plus rapprochées des secondes mâchoires avec lesquelles la première paire (A) présente encore beaucoup de ressemblance (voy. f. 72, 73 et 74).

Quant aux pattes abdominales, il n'en existe alors aucun vestige.

En réfléchissant sur les faits ci-dessus exposés, nous avons été amené à adopter une opinion qui paraîtra peut-être hasardée, mais que nous croyons devoir soumettre aux anatomistes qui se sont occupés d'embryogénie. La composition de la bouche de la très jeune *Caridine* ne rappelle-t-elle pas celle des *Squilles* et même celle des insectes hexapodes? n'a-t-elle pas surtout la plus grande analogie avec l'organisation buccale des Scolopendres (1)? Ne trouvons-nous pas ici, comme chez la *Scolopendra coleoptrata* de Fabricius (*Scutigera araneoides* Latr.), un labre, une paire de mandibules et deux paires de mâchoires, dont les dernières peuvent fort bien représenter la lèvre inférieure? Or, telle est précisément aussi l'organisation buccale d'un insecte hexapode; mais là ne se bornent pas les ressemblances que nous avons cru reconnaître entre notre larve de Caridine et les insectes proprement dits. Chez ces derniers on trouve, après les organes manducateurs, trois paires d'appendices que M. Savigny regarde comme les analogues des pieds-mâchoires des Crustacés Décapodes, bien qu'ils soient employés à la locomotion. Nous pensons nous-même que les organes essentiellement locomoteurs que nous avons désignés chez notre larve sous le nom de pattes bifides, représentent les vraies pattes de l'insecte hexapode; nous pensons qu'elles se transforment dans la suite en mâchoires auxiliaires; nous pensons enfin que cette larve est privée non-seulement de pattes abdominales, mais encore de pattes thoraciques. N'ayant pu, malgré tous nos efforts, conserver en vie nos Caridines plus de trois ou quatre jours, nous nous trouvons dans l'impossibilité d'étayer nos assertions de toutes les preuves qu'on est en droit d'exiger de nous; mais nous avons souvent rencontré, dans le canal du Midi, de très jeunes individus semblables à celui qui est représenté figure 36; et, quoique à cet âge ils fussent déjà constitués essentiellement comme l'animal adulte, nous avons pourtant observé des différences assez marquées pour nous fournir quelques argumens à l'appui de notre opinion.

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(1) Voyez les *Mémoires sur les animaux sans vertèbres*, par M. Savigny, premier fascicule. *Théorie de la bouche des Insectes apiropodes.*

Que l'on jette, en effet, les yeux sur la figure 38, et l'on reconnaîtra encore très facilement le palpe (*b*) ou branche extérieure d'une des pattes bifides, dont la branche interne (*a*) a seulement changé de forme et de dimension pour devenir un organe manducateur.

Ajoutez à cela qu'il existe un palpe presque semblable attaché à l'article basilaire de la tige des premiers et troisièmes pieds-mâchoires, et vous vous rendrez aisément compte de la transformation que nous cherchons à établir (voy. fig. 39, *b*).

Ce n'est pas tout encore : on trouve aussi un palpe à la base des deux premières paires de pattes ou pattes didactyles de l'animal adulte (fig. 40 et 41 *a*). Nous le voyons exister aux mêmes pattes chez le jeune individu ici représenté; nous l'observons même à la troisième et à la quatrième paire de pattes thoraciques (fig. 42

et 43 *a*), mais il y est rudimentaire ou plutôt atrophié. Il existe sans doute aussi à la cinquième à une époque plus rapprochée de la naissance; il nous semble donc très probable que,

1° Les trois paires de pattes bifides de la larve sortant de l'œuf se changent plus tard en mâchoires auxiliaires;

2° Les pattes thoraciques dont l'apparition est plus tardive commencent elles-mêmes par être bifurquées;

3° Le palpe des trois paires postérieures s'atrophie par les progrès de l'âge, tandis que celui des pattes didactyles subsiste jusqu'à la fin de la vie de l'individu, comme un indice du mode identique de formation de ces organes locomoteurs.

Métamorphoses des organes intérieurs. La description que nous venons de donner des formes extérieures de notre Crustacé au moment où il sort de l'œuf, et le parallèle que nous en avons fait avec l'individu complètement développé, suffiraient, ce nous semble, pour justifier le nom de *métamorphose* inscrit au commencement de ce Mémoire. Cependant, comme on ne saurait trop multiplier les preuves lorsqu'il s'agit d'une question souvent controversée, nous croyons devoir faire connaître maintenant les principales modifications que la série des développemens introduit dans l'organisation intérieure de notre Crustacé. Nous ne parlerons pas des organes génitaux qui ne se montrent que long-temps après l'éclosion. Quant aux branchies, l'individu sortant de l'œuf en est tout-à-fait dépourvu, et tant qu'il n'a pas atteint 3,5 millim. de longueur, on peut dire qu'il en demeure privé, ou du moins qu'elles n'existent chez lui qu'à l'état de rudimens; il paraît même que ces organes se montrent assez tard, puisque l'animal offre déjà intérieurement la plus grande ressemblance avec l'adulte, que l'on n'en voit encore que quatre paires au lieu de sept paires qu'on trouve chez celui-ci. Ces branchies se montrent d'abord sous la forme de simples lamelles échancrées et comme festonnées sur les bords, puis elles se divisent en deux rangs de feuillets peu nombreux et juxtaposés (voy. figures 36 et 37); enfin, par des additions successives de nouvelles lames, elles arrivent à la forme compliquée représentée figure 24. Il est à observer que les branchies du jeune individu sont d'autant moins développées, qu'elles sont situées plus en arrière, et que la dernière paire de pattes en manque totalement; circonstance qui suffirait à elle seule pour indiquer que non-seulement la formation des branchies, mais encore celle des pattes ambulatoires a lieu d'avant en arrière, et s'accompagne d'un développement proportionnel dans la partie thoracique du corps de l'animal, si les dessins du capitaine Ducasse ne mettaient d'ailleurs ce fait à l'abri de toute contestation. Chez le *Palœmon vulgaris* (fig. 78 *bis*), nous voyons, en effet, derrière les pattes bifides trois paires d'appendices qui ne sont, selon nous, autre chose que les rudimens des trois premières paires de pattes ambulatoires de l'animal adulte. Nous voyons, en outre, que la carapace du très jeune individu (fig. 36) est proportionnellement plus allongée que celle de la larve, plus allongée même que celle de l'animal parfait.

Mais c'est surtout le tube digestif et ses annexes qui vont nous offrir les différences les plus tranchées.

Organes digestifs de la larve comparés à ceux de l'adulte. Chez l'individu qui vient de naître, l'œsophage se recourbe en haut et en arrière pour pénétrer dans l'estomac, qui n'est alors qu'une dilatation à peine sensible du canal alimentaire (fig. 77, *a*) et dépourvu de cet appareil cartilagineux si compliqué que nous allons décrire chez l'adulte. Le reste du tube digestif (*a*) s'étend en ligne droite jusqu'à l'anus et n'offre rien de remarquable, si ce n'est sa transparence et sa minceur extrême. Ce tube est presque constamment vide, même chez les individus qui ont déjà deux ou trois jours, et il exécute alors des mouvemens vermiculaires fortement prononcés.

L'intestin proprement dit de l'adulte (fig. 25) ressemble à celui de la larve sous le rapport de sa forme et de sa direction; mais il n'en est pas de même de sa structure, surtout en ce qui concerne l'œsophage et le renflement stomacal.

Si notre intention était de nous livrer à de simples études anatomiques, nous tâcherions de décrire aussi exactement et aussi minutieusement que possible l'organisation si compliquée et si difficile à comprendre de ces deux portions du tube alimentaire; mais nous ne devons pas oublier que notre but est de prouver qu'il existe de vraies métamorphoses chez la *Cari-*

dina Desmarestii. Mettre en regard les parties internes et externes de l'individu récemment éclos avec celles de l'animal parfait, nous a paru le plus sûr moyen de convaincre, et nous avons pensé que des dessins exacts pourraient nous épargner de longues descriptions. Aussi ferons-nous celle qui va suivre aussi succincte que possible, sans nuire toutefois à la clarté.

Quand on a lu avec attention le chapitre de l'*Anatomie comparée* de Cuvier, où ce grand zoologiste expose le fruit de ses observations sur l'estomac de l'Écrevisse ; quand on a suivi M. Milne Edwards dans la description si détaillée de ce même organe chez le Crabe commun, on s'étonne de l'immense complication de ce viscère et du grand nombre de pièces qu'il renferme chez des animaux où la structure de la bouche est elle-même si compliquée. On est tenté de se demander à quoi bon cet appareil de dents aiguës ou tranchantes, de lames ou de leviers cornés, calcaires ou cartilagineux, dont il est presque impossible de fixer les usages précis.

La surprise et l'incertitude ne sont pas moins grandes lorsque l'on étudie le tube digestif de notre Salicoque.

Ici, l'œsophage (fig. 25 *a* et 27 A) est soutenu par diverses pièces cartilagineuses et garnies de poils, et surtout par deux espèces de crochets également cartilagineux (*c*), qui surmontent un appareil très curieux (B) appartenant à l'estomac. Ce viscère lui-même, situé en partie dans la tête, est d'une très grande capacité, et renferme une foule de parties que l'on distingue facilement après avoir enlevé les membranes qui les recouvrent, et qui ne sont autre chose que les tuniques de l'intestin proprement dit. La pièce la plus singulière de tout cet appareil consiste en une espèce de boîte en ovale aplati, dont chaque moitié est divisée dans le sens de son grand diamètre par dix ou douze lignes parallèles assez semblables aux côtes d'un melon (fig. 25 *b* et 27). Ces côtes sont formées par des lames cornées ou cartilagineuses, transparentes et d'une couleur brunâtre. Si l'on enlève les cartilages qui entourent cette boîte et la maintiennent fermée, alors on la voit se partager en deux compartimens égaux, et les lames cornées apparaissent garnies de poils que l'on parvient à détacher aisément. (Voyez figure 33, une de ces lames.)

Au-dedans de cette première boîte, il en existe une seconde à-peu-près de même forme et de même dimension (fig. 30), mais dont les lames paraissent formées de lamelles empilées les unes sur les autres (fig. 32). Pour ouvrir cette seconde boîte, il suffit de détacher un des bords du cercle velu (fig. 30, *b*) qui en entoure le côté postérieur, ou bien d'enlever la plaque *c* qui la coiffe, ainsi que la boîte externe, à la manière d'un chaperon. Un grand nombre de baguettes ou leviers cartilagineux et hérissés de poils occupent l'espace situé au-dessus et derrière cet appareil (fig. 27 et 29, *d*, *d*, *e*, *e*, *f*, *g*) et contribuent soit aux mouvemens de bascule que l'estomac exécute presque continuellement, soit au maintien de ses parois. Qu'il nous suffise de les indiquer. Mais nous ne pouvons passer sous silence un autre appareil au moins aussi curieux que le précédent, et presque aussi difficile à décrire.

Que l'on se figure deux longs tubes en cône renversé (fig. 27, *m*, *n*), parallèles et logés dans l'intestin, excepté à l'endroit qui correspond à leur sommet. Que l'on suppose qu'ils se prolongent à leur base de manière à former un disque membraneux très mince (*h*), transparent, de figure elliptique, et percé dans son milieu d'une ouverture très allongée (*), tournée vers la face postérieure de la double boîte stomacale. Enfin, imaginons une autre ouverture oblongue et très étroite, séparant deux plaques cartilagineuses (*i*) munies sur leur face supérieure de petits mamelons velus, et placées au-dessus de deux plaques plus grandes, mais à-peu-près semblables et disposées de la même manière. Enfin, représentons-nous une troisième paire de plaques (*k*) situées au-dessous des deuxièmes, et admettons que toutes ces plaques sont comme retenues ensemble par une membrane très élastique, pouvant, par des allongemens et des raccourcissemens successifs, rapprocher et éloigner les pièces mamelonnées que nous venons de faire connaître. Nous aurons ainsi une capsule communiquant avec deux longs boyaux, et renfermant un appareil de mastication très énergique, probablement analogue aux dents que l'on observe dans l'estomac de l'Ecrevisse. Cet appareil étant en grande partie caché dans la portion pylorique de l'estomac, et rendu opaque par les alimens qui s'y trouvent, nous ne pouvons déterminer avec précision sa manière de fonctionner; nous sommes dans la même ignorance en ce qui concerne la double boîte dont il a été précédemment question : aussi nous contenterons-nous d'ajouter que nous avons trouvé ces appareils constamment vides, ce qui semblerait indiquer que les matières alimentaires ne font qu'y passer pour subir l'action des pièces diverses dont ils sont composés; nous ignorons également l'usage de deux gros *cœcums* (fig. 25, *c*) placés vers le commencement de l'intestin proprement dit; sont-ce des espèces de *diverticulum* ou réservoirs pour les substances élaborées dans l'estomac : nous le croyons sans l'affirmer. Ce qu'il y a de certain, c'est qu'en pressant sur l'estomac, nous avons pu introduire dans ces espèces d'appendices les alimens qu'il contenait.

Nous ne dirons qu'un mot du foie. Chez l'adulte, il se compose de deux masses principales (fig. 25, *e*) formées elles-mêmes d'une multitude de petits *cœcums* (fig. 26) dont les uns sont tout-à-fait transparens, tandis que les autres sont un peu opaques et légèrement jaunâtres. Mis dans l'eau, cet organe glanduleux laisse échapper un grand nombre de gouttelettes huileuses qui forment, à la surface du liquide, de petites taches visibles à l'œil nu.

Le foie de la larve (fig. 77, *e*) se compose de plusieurs petites masses lobulées auxquelles adhèrent des globules d'autant plus nombreux, qu'on l'examine à une époque plus rapprochée de la naissance : parmi ces globules, on aperçoit de grosses gouttes huileuses.

La transparence de tous les organes et l'extrême petitesse de l'abdomen ne nous ont pas permis d'étudier le système nerveux soit dans l'œuf, soit dans l'individu qui vient de naître. Nous ne dirons donc rien des changemens qu'il subit chez l'adulte.

Mouvemens de la larve. Quant aux mouvemens de la larve, ils diffèrent considérablement de ceux de l'animal parfait : tantôt on le voit nager la tête en bas au moyen de ses pattes bifides qu'elle agite sans cesse; mais comme le poids de la partie antérieure du corps l'emporte de beaucoup sur celui de la partie postérieure, il en résulte que l'animal tombe souvent au fond du vase. Pour revenir à la surface, il recourbe en avant son abdomen, le débande ensuite avec force, et se trouve ainsi lancé obliquement en arrière à une distance assez grande de son point de départ. Il répète très souvent ces sauts brusques et rétrogrades que l'adulte n'exécute qu'autant qu'il se voit poursuivi.

Durée de la vie. Après sa sortie de l'œuf, la larve de la *Caridina Desmarestii* paraît manger très peu; car j'ai presque toujours vu le tube digestif des individus que j'examinais ou complètement vide ou à peine rempli dans sa moitié supérieure d'une substance verdâtre (Algues, Protococcus?) Peut-être ces individus ne trouvaient-ils pas, dans les vases où je les tenais captifs, une nourriture appropriée à leurs premiers besoins; peut-être aussi doivent-ils, dans les premiers jours qui suivent leur naissance, vivre dans des conditions toutes différentes de celles où je les avais artificiellement placés. Quoi qu'il en soit, je n'ai jamais pu les garder en vie plus de trois ou quatre jours, lors même que j'avais soin de réunir, autant que possible, les circonstances que je croyais favorables à leur conservation. (1)

Mue. La première mue a lieu trois jours après l'éclosion de la larve, et elle diffère principalement de la mue de l'adulte, en ce que l'animal ne quitte sa carapace qu'après s'être préalablement débarrassé du reste de ses anciens tégumens (2). J'ai toujours vu *tous* les individus élevés en captivité succomber à cette pénible et dangereuse opération. Mais leur mort doit-elle être attribuée seulement à la mue? Je l'ignore complètement. Quoi qu'il en soit, les détails dans lesquels nous venons d'entrer nous semblent plus que suffisans pour nous autoriser à conclure que la *Caridina Desmarestii* passe, avant d'arriver à l'âge adulte, par une série de modifications auxquelles nous pouvons donner le nom de *vraies métamorphoses*.

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(1) Parmi les divers moyens que j'ai employés, je citerai surtout les deux suivans: j'ai mis dans des filets de gaze et dans des boîtes de ferblanc, percées de très petits trous, des femelles dont les œufs étaient près d'éclore, et j'ai placé les filets et les boîtes sur les bords du canal du Midi, à l'abri des rayons du soleil. La moitié inférieure de mes appareils plongeait seule dans l'eau. Le lendemain, je n'y ai plus trouvé que des cadavres. J'ai répété plusieurs fois sans succès la même expérience.

(2) Ceci, pour le dire en passant, s'accorde parfaitement avec ce que Thompson a observé chez les *Zoés*, bien que M. Westwood ait prétendu (l. cit. page 316) qu'un pareil mode de dépouillement est tout-à-fait en opposition avec les principes suivant lesquels les animaux annelés, procèdent à la mue. Le fait a paru impossible à M. Westwood; mais je puis affirmer qu'il a réellement lieu. Voici, du reste, ce que dit à cet égard le savant auteur du *Mémoire sur l'existence supposée des métamorphoses chez les Crustacés:* « The appearance of these limbs « (*les pattes bifides*) represented as perfectly disengaged in M. Thompson's, Pl. 2, fig. 11, « previous to the shedding of the cephalothoracic shield and anterior parts of the body is « totally at variance with the principles of *ecdysis* observable throughout the *Annulosa*,

Existe-t-il de vraies métamorphoses chez la Caridina Desmarestii? — Qu'est-ce, en effet, qu'une métamorphose?

Parmi les diverses définitions qui en ont été données en histoire naturelle, on peut, ce nous semble, adopter les deux suivantes, qui les résument toutes.

« Je nomme *métamorphose*, dit Lamarck, cette particularité « singulière de l'insecte de ne pas naître soit sous la forme, soit « avec toutes les sortes de parties qu'il doit avoir dans son der« nier état ». (1)

Lamarck a particularisé sa définition en l'appliquant aux insectes proprement dits; en voici une plus générale :

« On entend par *métamorphose*, tout changement par lequel « un animal paraît autre qu'il n'était auparavant par l'addition « de nouveaux organes, ou l'occultation de ceux qu'il pré« sentait. » (2)

Or, quelle que soit celle de ces deux définitions que l'on veuille adopter, on verra que l'une ou l'autre s'applique parfaitement aux modifications que nous avons décrites chez notre Crustacé. En effet, si l'on s'en tient à celle de Lamarck, il est facile de l'appliquer à notre animal, *puisqu'il ne naît pas sous la forme, ni avec toutes les parties qu'il doit avoir dans son dernier état.* (Il lui manque, entre autres organes essentiels, des branchies, un certain nombre d'organes manducateurs, des

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« in which the locomotive organs, at last the legs, are the last which are disengaged, and « the thoracic shield of the enclosed animal, the first portion exposed to view. It would in « fact be impossible for the *Zoe* to disengage the thoracic limbs without the thorax itself « being previously withdrawn from its covering » (l. cit. page 316).

(1) Hist. nat. des Anim. sans vertèb. tome III, page 277, première édition.

(2) Lacordaire, Introduct. à l'Entomol. tome I, page 15.

pattes ambulatoires, des pattes abdominales, une queue écailleuse, un estomac complexe, etc.)

D'un autre côté, il est évident que lorsque l'animal acquiert les parties dont il était privé au moment de la naissance, *par l'addition de ces nouveaux organes, il paraît autre qu'il n'était auparavant.* Ici encore, la définition du mot *métamorphose* trouve une juste application.

Voyons maintenant si les phénomènes que nous avons étudiés peuvent se rapporter aux divers modes que comprend, suivant Dugès, *cette opération très complexe qu'on appelle métamorphose* (1). Ces modes sont au nombre de trois :

1° Développement, transformation simple ou évolution.

Au premier mode se rattachent les modifications que subissent les antennes, les yeux, qui de sessiles qu'ils étaient d'abord, deviennent pédonculés, etc.

2° Formation de nouvelles parties.

Dans ce mode est comprise l'apparition des branchies, des pattes abdominales, des pattes thoraciques vraies, des pièces stomacales, etc.

3° Disparition de parties qui existaient auparavant.

Exemple. Atrophie des palpes situés à la base des pieds ambulatoires.

Il y a donc ici tout à-la-fois *destruction, formation* et *modification*, et, par conséquent, *vraie métamorphose.*

Si l'on nous demande maintenant à quelle espèce de *métamorphose* nous rapportons les changemens que subit notre *Caridina,* nous répondrons qu'il nous est impossible de les faire entrer d'une manière précise dans aucune des divisions établies par Latreille ou par Fabricius. Il est évident que ces changemens ne sont pas assez complets pour que nous les comprenions parmi les *métamorphoses totales;* mais il ne l'est pas moins qu'ils sont beaucoup plus nombreux et beaucoup plus marqués que ceux qu'éprouvent la *Sauterelle,* par exemple, et les autres Orthoptères ou Hémiptères, *qui sortent de l'œuf avec toutes leurs parties, sauf les ailes,* et qui ne subissent conséquemment que des *métamorphoses partielles*, des *demi-métamorphoses.* A la rigueur, il faudrait donc un nouveau terme pour désigner les modifications que nous a présentées le Crustacé trouvé dans le canal du Midi, mais on peut s'en passer facilement, pourvu que l'on convienne de ne plus se servir du mot *demi-métamorphose* dans le sens trop restreint qu'on lui a donné jusqu'à présent, en l'appliquant d'une manière exclusive aux changemens qu'éprouvent avec l'âge certains ordres d'insectes proprement dits (Orthoptères, Hémiptères, et quelques Névroptères). (1)

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(1) *Physiologie comparée,* tome III, page 471.

Que deviennent maintenant les argumens de M. Westwood, lorsque, se fondant sur les observations de Rathke au sujet de l'Ecrevisse, il croit pouvoir conclure *par analogie* que les autres Décapodes ne subissent pas de métamorphoses, et ne font que se dépouiller périodiquement de leur enveloppe extérieure (2)? Ne serions-nous pas en droit de lui répondre, en invoquant à notre tour l'analogie, et en nous servant des propres paroles de celui dont il a pris à tâche de renverser la théorie : « Dès que « la métamorphose a été prouvée dans un seul cas chez des « animaux aussi uniformes quant à leur structure que le sont les « *Homobranches*, nous pouvons en inférer sûrement par ana- « logie, en ce qui regarde la tribu dont nous venons de parler, « que cette métamorphose est un fait général. »

Mais si l'analogie est souvent un excellent moyen de preuve, n'oublions pas que souvent aussi elle est trompeuse. Ne nous hâtons donc point d'établir une théorie sans exceptions avant d'avoir recueilli un nombre de faits suffisans pour nous prononcer avec certitude. Notons cependant comme très précieuses pour la science les observations de Thompson et celles du capitaine Ducasse, et, loin de les rejeter sous prétexte qu'elles sont incomplètes ou fausses, cherchons à les confirmer par des observations nouvelles, suivies avec persévérance et sans idées préconçues.

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(1) Lacordaire définit ainsi, d'après Latreille, la demi-métamorphose: « C'est celle où l'animal sort de l'œuf avec toutes ses parties, sauf les ailes qui se développent au fur et à mesure de la croissance » (*Introd. à l'Entomol.* tome 1, page 14). A la définition qui précède, ne pourrait-on pas substituer celle qui suit? *La demi-métamorphose est celle où l'animal sort de l'œuf, ayant plus on moins la forme de l'adulte, mais privé d'un certain nombre d'organes essentiels qui se développent graduellement après plusieurs mues successives.*

(2) « Hence, since the organization of the Crustacea is more clearly analogous to that of the Vertebrata than that of the *Ptilota,* we arrive at one of the chief grounds for the generally received opinion amongst naturalists, that the transformations of the Crustacea consist merely in the periodical shedding of the outer envelope, without any metamorphosis being undergone or additional organs acquired ». (*Philosophical Transactions*, 1835, part. II, pag. 313.)

Sans doute, des noms tels que ceux de Latreille, Rathke, Westwood, sont des noms bien imposans, et personne n'est plus pénétré que moi de cette espèce de respect religieux qu'inspirent les talens supérieurs : personne aussi n'est plus porté que moi à se « soumettre à l'autorité, à celle de tels maîtres surtout; mais j'avoue que ma déférence trouve ici en ce moment de forts obstacles » (1). Je confesse même que les études que je viens de faire sur la *Caridina Desmarestii* me portent à attribuer beaucoup plus de valeur aux assertions de Thompson qu'aux argumens de M. Westwood. Quand je compare la description malheureusement si courte que le premier a donnée de la jeune Écrevisse, je ne puis m'empêcher d'y reconnaître de nombreux points de ressemblance entre cet animal et la larve du mien, qui est aussi une *Zoé modifiée, pourvue d'une épine frontale et d'une queue en spatule, mais privée de nageoires sous-abdominales ; en un mot un animal tel, que je n'aurais jamais pu le considérer pour ce qu'il est réellement, si je ne l'eusse obtenu plus de vingt fois en faisant éclore sous mes yeux les œufs* (2). Les figures que le capitaine Ducasse nous a laissées du *Palæmon variabilis* (Ditch Prawn) et du *Crangon vulgaris* (common Shrimp), me confirment encore davantage dans l'opinion que M. Westwood a eu tort d'avancer *que les transformations des Crustacés consistent simplement dans des dépouillemens*

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(1) Latreille, Hist. des Crust. et Insect. tome I, page 44.

(2) Voici comment Thompson s'exprime au sujet de la jeune Ecrevisse : « The common « lobster undergoes metamorphosis less in degree than any of the other genera, and consisting « in a change from a cheliferous Schizopode to a Decapode, in its first stage being what I call « a *modified Zoe*, with a frontal spine, a spatulate tail, and wanting subabdominal fins, in « short, such an animal as would never be considered what it really is, were it not obtained « by hatching the spawn of the lobster ». *Zoolog. Journal*, numéro XIX, page 383, d'après M. Westwood.

périodiques de leur enveloppe extérieure, sans que l'animal subisse aucune métamorphose ou acquière aucun nouvel organe.

Enfin, l'assertion du docteur Rathke me semble encore moins fondée, lorsqu'il dit : « *Il n'est donc pas vrai que, comme l'a* « *prétendu Thompson, les Décapodes sortent de l'œuf dans un* « *état fort imparfait, et les changemens qui se passent encore* « *pendant l'accroissement ne méritent point le nom de métamor-* « *phoses* » (1). Nous croyons, au contraire, qu'il faut admettre aujourd'hui que ce nom convient parfaitement aux modifications que subissent après leur naissance, si ce n'est tous les Décapodes Macroures, au moins un bon nombre d'entre eux.

Quant aux Décapodes Brachyures, n'ayant pas encore eu l'occasion d'étudier *de visu* leur embryogénie, nous nous abstiendrons d'en parler longuement. Cependant il n'est peut-être pas inutile de rappeler ici que le docteur Rathke lui-même assure que « la queue (abdomen) des embryons avancés en âge, même chez « les Crabes, est aussi grêle et aussi longue que celle de l'Écre- « visse au moment de l'éclosion, et qu'elle est même pourvue « d'un éventail. » (2)

Un des principaux argumens employés par M. Westwood pour prouver que les Zoés ne peuvent jamais devenir des Brachyures, perd donc par cela toute espèce de valeur. Nous ne saurions non plus admettre avec ce savant entomologiste que les Zoés pourraient bien être des parasites qui, par un procédé encore inexpliqué, s'introduiraient à l'état d'embryon sous l'abdomen des Crabes. Enfin, pour exprimer notre pensée tout entière, les autres assertions de M. Westwood ne nous paraissent infirmer en rien celles de Thompson. De ce que celui-ci ne dit pas comment les pattes bifides et natatoires des Zoés deviennent des pattes simples et ambulatoires, il ne s'ensuit nullement que le changement n'ait réellement pas lieu. Vouloir réfuter des faits donnés comme positifs, en se basant sur des principes qui peuvent être erronés, c'est s'exposer soi-même à tomber dans l'erreur. Aussi les opinions de M. Westwood sont-elles assez souvent contredites par ce que nous avons vu nous-même. Quant à ses observations sur des Crabes de terre *conservés dans l'alcool*, elles ne prouvent pas, selon nous, que les Crabes marins ne subissent pas de métamorphoses ; elles ne font tout au plus que constater une exception à un fait que les recherches de Thompson, du capitaine Ducasse et les nôtres, tendent à faire regarder déjà comme général.

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(1) Physiologie de Burdach, tome III, page 120, de la traduction française.

(2) Physiologie de Burdach, tome III, page 119.

CONCLUSIONS.

Si nous résumons maintenant les points principaux que nous nous sommes efforcé d'établir dans ce Mémoire, nous verrons que :

1° L'animal désigné par M. Millet sous le nom d'*Hippolyte Desmarestii*, n'est point un *Hippolyte* ;

2° Par tous ses caractères essentiels, il appartient au genre *Caridina* (Milne Edw.), le seul qui renferme jusqu'à présent des Salicoques d'eau douce ;

3° Les phénomènes que nous avons observés en étudiant l'embryogénie de ce Crustacé, diffèrent, à beaucoup d'égards, de ceux que le docteur Rathke a décrits dans ses *Recherches sur le développement de l'Écrevisse* ;

4° La *Caridina Desmarestii* sort de l'œuf sous une forme différente de celle de l'adulte, et se trouve alors privée de plusieurs organes très développés chez ce dernier (branchies, pieds-mâchoires, fausses pattes abdominales, appareil stomacal, etc.);

5° Les changemens qu'elle subit avec l'âge constituent de *vraies métamorphoses*, des métamorphoses beaucoup plus complètes que celles qu'éprouvent les insectes Orthoptères, les Hémiptères et certains Névroptères ;

6° En rapprochant nos observations de celles de Thompson et du capitaine Ducasse, nous nous croyons autorisé à penser, contrairement à l'opinion généralement admise, que presque tous, et peut-être même tous les Crustacés Décapodes, sont sujets à de semblables transformations.

EXPLICATION DES FIGURES.

PLANCHE 3.

Anatomie de l'individu adulte.

Fig. 1. *Caridina Desmarestii* (Joly), *Hippolyte Desmarestii* (Millet), adulte. Grossi. — A. Grandeur naturelle.

Fig. 2. Rostre détaché de la carapace.

Fig. 3. Œil. — *a*. Son pédicule.

Fig. 4. Facettes de la cornée transparente, Grossi 200 fois.

Fig. 5. Labre.

Fig. 6. Languette ou lèvre inférieure, plus grossie que le labre.

Fig. 7. Mandibule. — *a* et *b*. Ses deux branches.

Fig. 8. Mâchoire de la première paire. — *a*, *b*. Tige; *g*. Palpe.

Fig. 9. Mâchoire de la seconde paire, dont l'appendice valvulaire ou fouet (*a*) a été à dessin écarté de la tige, afin de faire voir la largeur et la forme de cet appendice. — *d*. Touffe de poils, dont il est pourvu à l'une de ses extrémités; *b*, *c*. Tige.

Fig. 10. Mâchoire auxiliaire ou pied-mâchoire de la première paire. — *a*. *b*. Tige; *g*. Palpe; *h*. Branchie rudimentaire.

Fig. 11. Mâchoire auxiliaire ou pied-mâchoire de la deuxième paire. — *a*, *b*, *c*, *d*, *e*, *f*. Les six articles dont se compose la tige; *g*. Palpe; *h*. Branchie.

Fig. 12. Pied-mâchoire externe ou de la troisième paire. — *a*, *b*, *c*, *d*. Tige; *g*. Palpe; *h*. Branchie; *i*. Appendice cornée de l'article basilaire.

N. B. Les six organes indiqués par les numéros 5-12 appartiennent au côté droit de l'animal.

Fig. 14. Antenne interne droite. — *a*, *b*, *c*. Les trois articles du pédicule; *d*. Epine du premier article; *e*, *f*. Filets de cette antenne.

Fig. 15. Première patte thoracique ou patte didactyle antérieure (côté droit). — *a*, *b*. Les deux articles formant la hanche; *c*. Trochanter; *d*. Bras; *e*. Carpe; *f*. Main; *g*. Doigt mobile; *h*. Appendice corné de l'article basilaire; *i*. Tubercule pilifère; *j*. Poils épineux; *k*. Poils placés au côté interne de l'article basilaire; *l*. Palpe.

Fig. 16. Patte didactyle de la deuxième paire. Les mêmes lettres indiquent les mêmes parties que dans la figure précédente.

Fig. 17. Patte thoracique de la quatrième paire. — *a* et *b*. Les deux articles formant la hanche *c*. Trochanter; *d*. Fémur; *e*. Jambe; *f*. Métatarse; *g*. Tarse ou doigt; *h*. Appendice corné de l'article basilaire; *i*, *j* comme dans la figure précédente.

Fig. 18. Appendice corné de l'article basilaire de cette patte (fouet rudimentaire ?). — *a*. Extrémité fixée au dessous du tubercule pilifère; *b*. Ouverture qu'elle présente; *c*. Extrémité libre et recourbée pénétrant dans le mamelon *d* grossi 140 fois.

Fig. 19. Fausse patte natatoire de la troisième paire (côté gauche), vue en dessus. — *Individu femelle*. — *a*. Pédicule portant les deux lames *b* et *c*; *d*. Appendice digitiforme de la lame interne; *e*. Œufs attachés aux poils du pédicule.

Fig. 20. Patte natatoire de la première paire (côté gauche) —*Individu mâle.*—*a*, *b* comme dans la figure 19 ; *c*. Lame interne, recourbée en faucille.

Fig. 21. Patte natatoire de la troisième paire (côté gauche). *Individu mâle.*—*a*, *b*, *c* comme dans la figure 19 ; *d*. Appendice conique et velu, placé à côté du bord interne de la lame *c*, mais n'adhérant point à cette lame ; *e*. Appendice digitiforme, placé à la base du précédent.

Fig. 22. Appendice digitiforme isolé.

Fig. 23. Queue. — *a*. Dernier segment abdominal ; *b*. Segment caudal ; *c*, *c*, *d*, *d*. Lames latérales.

Fig. 24. Une des branchies placées à la base des pattes thoraciques.

Fig. 25. Tube digestif. — *a*. Œsophage ; *b*. Estomac et appareil stomacal ; *c*. Cœcums pyloriques ; *d*. Intestin proprement dit ; *e*. Foie ; *f*. Segment caudal.

Fig. 26. Lobules du foie. Très grossis.

Fig. 27. Appareil stomacal. — A. Portion de l'œsophage ; B. Double boîte stomacale, formée de lames cornées ou cartilagineuses, disposées comme les côtes d'un melon ; *c*, *d*, *e*, *e*. Pièces cartilagineuses contribuant, comme des espèces de ressorts élastiques, aux mouvemens de bascule qu'exécute l'appareil ; *f*. Cercle cartilagineux entourant la partie postérieure de la double boîte stomacale. On voit derrière cette boîte un grand nombre de pièces cartilagineuses et velues, servant sans doute à opérer une division plus intime des substances alimentaires. — C. Capsule stomacale ; *h*. Disque membraneux elliptique, formé par le prolongement des tubes *m*, *n* ; * Ouverture du disque ; *i*, *k*. Les plaques mamelonnées ; *l* Membrane élastique qui les entoure. Très grossi.

Fig. 28. Quelques-uns des mamelons des plaques *i*, *k* (fig. 27). Grossis 300 fois.

Fig. 29. Boîte stomacale externe, ouverte par le milieu. — *a*, *a*. Ses deux moitiés, vues par leur face interne ; *b*, *b*. Ressorts cartilagineux servant surtout à opérer les mouvemens de bascule ; *c*, *c*. Cercle cartilagineux ; *d*, *d*, *e*, *e*, *f*, *g*. Diverses pièces cartilagineuses et velues. Très grossie.

Fig. 30. Boîte interne, vue par sa face extérieure. — *a*, *a*. Ses deux moitiés ; *b*. Cercle cartilagineux et velu qui l'entoure à sa face postérieure ; *c*. Pièce placée comme un chaperon au-dessus de la boîte. Très grossie.

Fig. 31. Une des moitiés de la boîte interne, vue par sa face extérieure. — *a*. Cercle cartilagineux et velu, indiqué par la lettre *b* dans la figure précédente. Très grossie.

Fig. 32. Une des lames qui entrent dans la composition de la boîte interne. Grossis 300 fois.

Fig. 33. Lames faisant partie de la boîte externe. Moins grossies que les précédentes.

Fig. 34. Patte monodactyle, dont les trois derniers articles, *a*, *b*, *c*, se sont reproduits au bout de dix jours, après avoir été enlevés à dessein à un individu adulte.

Fig. 35. Patte didactyle de la première paire (côté droit), dont j'avais enlevé la main, et que l'animal a cassé jusqu'au trochanter (*d*). La main (*a*) et les deux articles qui la précèdent (*b*, *c*) sont déjà bien visibles. On aperçoit aussi la membrane qui entoure la patte reproduite, ainsi que les poils qui terminent la pince.

PLANCHE 4.

Anatomie de l'individu très jeune.

Fig. 36. Individu de 3,5 millimètres, qui a déjà subi presque toutes ses métamorphoses. Grossi. — A. Grandeur naturelle.

Fig. 37. Branchie placée à la base de la première patte didactyle. Grossie 140 fois.

Fig. 38. Patte-mâchoire de la deuxième paire (côté gauche). — *a*. Tige; *b*. Palpe. Grossie 140 fois.

Fig. 39. Pied-mâchoire externe (côté droit). — *a*. Tige; *b*. Palpe. Grossi 140 fois.

Fig. 40. Patte didactyle de la première paire (côté droit), vue par sa face interne. Grossie 140 fois.

Fig. 41. Patte didactyle de la deuxième paire (côté droit), vue par sa face interne. Grossie 140 fois.

N. B. Dans ces deux dernières figures, le palpe (*a*, *a*) conserve encore la plus grande ressemblance avec celui des pattes bifides de la larve (voyez fig. 72, 73 et 74 G)

Fig. 42. Première patte monodactyle ou troisième patte thoracique. — *a*. Son palpe en grande partie atrophié. Grossie 140 fois.

Fig. 43. Base de la deuxième patte monodactyle avec son palpe (*a*) atrophié. Grossie 140 fois.

Fig. 44. Fausse patte ou patte natatoire de la deuxième paire (côté gauche). — *b*, *c*. Lames; *d*. Appendice digitiforme de la lame interne; *e*. Prolongement latéral de l'abdomen. Grossie 140 fois.

Développement de l'œuf et métamorphoses. — Anatomie de la larve.

Fig. 45, 46, 47, 48, 49. OEufs à divers degrés de développement extraits de l'ovaire d'une femelle, dont les petits étaient éclos depuis douze jours. Grossis 140 fois.

Fig. 50. Un œuf plus avancé, examiné dans l'ovaire d'une autre femelle. — *a*. Epaisseur des parois de l'ovaire. Grossi 140 fois.

Fig. 51. Portion postérieure ou inférieure de l'ovaire de la même femelle. Grossi.

Fig. 52. Un œuf pondu depuis deux ou trois jours. — *a*. Portion de la membrane nidulante qui l'entoure; *b*. Chorion sous lequel on trouve une couche d'albumen très mince *c*. Vitellus et sa membrane. Grossi 140 fois. — A. OEufs fécondés de grandeur naturelle.

Fig. 53. Globules vitellins de l'œuf fig. 52. Grossis 140 fois.

Fig. 54. Gouttelettes huileuses du même. Grossies 140 fois.

Fig. 55. Chorion d'un autre œuf, enveloppé en partie par la membrane nidulante (*a*), qui se prolonge en forme de filamens (*b*, *c*), pour aller envelopper d'autres œufs (*d*, *e*). Grossi 140 fois.

Fig. 56. OEuf dans lequel a commencé le développement de l'embryon. — *a*. Croissant transparent, qui indique la place de l'abdomen. Grossi 140 fois.

Fig. 57. Le même œuf après huit jours d'incubation. — *a*. Masse abdominale; *b*. Ouverture anale; *c*, *d*, *e*. Bandes transversales représentant les trois paires de pattes thoraciques (pattes bifides) de la larve future. Grossi 140 fois.

Fig. 58. OEuf après dix jours d'incubation. Grossi 140 fois.

Fig. 59. OEuf après douze jours d'incubation. Grossi 140 fois.

Fig. 60. OEuf après dix-sept jours d'incubation. Grossi 140 fois.

Fig. 61. OEuf près d'éclore, vu par sa face inférieure ou ventrale. Grossi 140 fois.

Fig. 62. Le même, vu par sa face dorsale. Grossi 140 fois.

Fig. 63. Embryon âgé de douze jours. Grossi 220 fois.

Fig. 64. Embryon âgé de dix-sept jours. Grossi 140 fois.

Fig. 65. Larve qui vient d'éclore. Grossie 140 fois.

Fig. 66. Larve âgée d'un jour. Moins grossie que la précédente.

N. B. Dans les neuf dernières figures (58-66), *a*, *b*, *c*, indiquent les pattes bifides. — *d*. La deuxième paire de mâchoires; *e*. La première paire; *f*. Les mandibules; *g*. Les antennes externes; *h*. Les antennes internes; *i*. La tête; *j*. Les yeux; *k*. Corps vitrés; *l*. Carapace; *m*. Rostre; *n*. Intestin; *o*. Abdomen; *p*. Queue; *q*. Cœur; *r*, *s*. Les artères qui en naissent; *t*. Vitellus; *u*. Foie; *v*. Tache anale, *x*. Poils de la queue; *y*. Poils de l'extrémité des pattes; *z*. Poils de l'extrémité des antennes; *. Première patte thoracique de l'adulte encore rudimentaire.

Fig. 67. Antenne externe gauche. — *a*, *b*. Les deux articles du pédicule de l'appendice lamelleux; *c*. Cet appendice lui-même; *d*. Poil coudé (filament antennaire de l'adulte). Grossie 220 fois.

Fig. 68. Antenne interne gauche. — *a*, *b*, *c*. Les trois articles du pédicule. — *d*. Mamelon, d'où naîtra le filament externe; *e*. Gros poil qui deviendra le filament interne. Grossie 220 fois.

Fig. 69. Labre. Grossi 220 fois.

Fig. 70 et 70 *bis*. Mandibules, vues sous différens aspects. Grossies 220 fois.

Fig. 71. Mâchoire de la première paire isolée (côté gauche). Grossie 220 fois.

Fig. 71 *bis*. *a*. Mâchoire de la première paire en rapport avec celle de la seconde (côté gauche). Grossie 220 fois.

Fig. 72. Première patte bifide ou patte bifide antérieure; vue par sa face interne (côté gauche). Grossie 140 fois.

Fig. 73. Deuxième patte bifide ou patte bifide moyenne, vue par sa face interne (côté gauche). Grossie 140 fois.

Fig. 74. Troisième paire bifide ou patte bifide postérieure, vue par sa face interne (côté gauche). Grossie 140 fois.

N. B. Dans ces trois dernières figures, *a* indique l'article basilaire de la patte; B sa branche interne ou tige; C branche externe ou palpe; *d*, *e*, *f*, *g* les quatre articles de la branche externe; *h*, *i*, *k*, les quatre articles de la branche interne.

Fig. 75. OEil d'une larve âgée de trois jours. Grossi 140 fois.

Fig. 76. Portion de la cornée transparente du même. Grossie 220 fois.

Fig. 77. Canal digestif d'une larve qui vient de naître. — *a*. OEsophage; *b*. Renflement tomacal; *c*. Intestin; *d*. Anus; *e*. Foie et vitellus. Grossi 220 fois.

Fig. 78. Larve de *Palæmon variabilis* (Ditch Prawn.), se mouvant dans l'eau.

Fig. 78 *bis*. La même, couchée sur le dos, et montrant déjà les rudimens de ses vraies pattes.

N. B. Ces deux dernières figures ont été faites d'après les calques que M. le docteur A. de Quatrefages a bien voulu prendre, à ma prière, sur les dessins du capitaine Ducasse. (*Annals of natural history*, 1838.)

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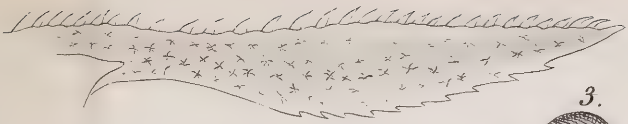

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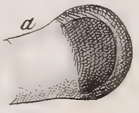

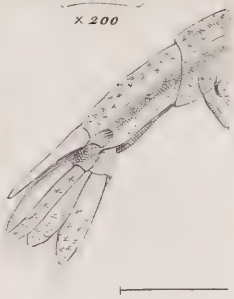

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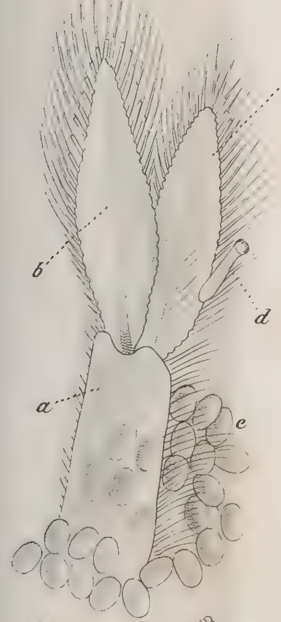

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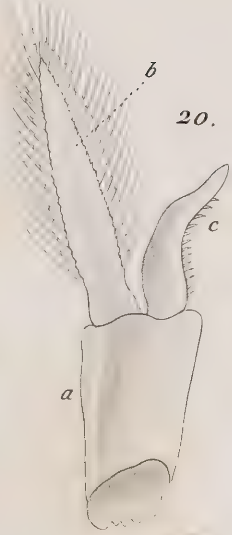

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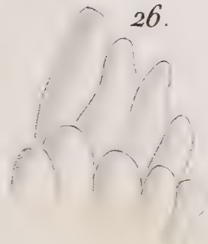

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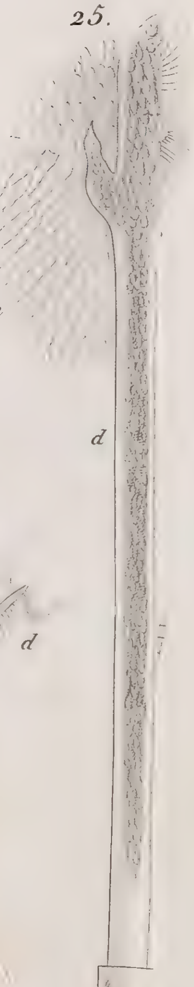

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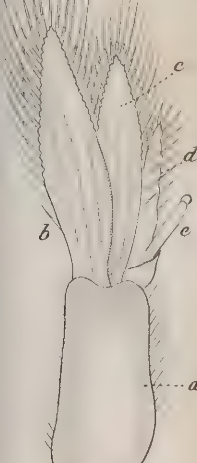

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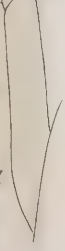

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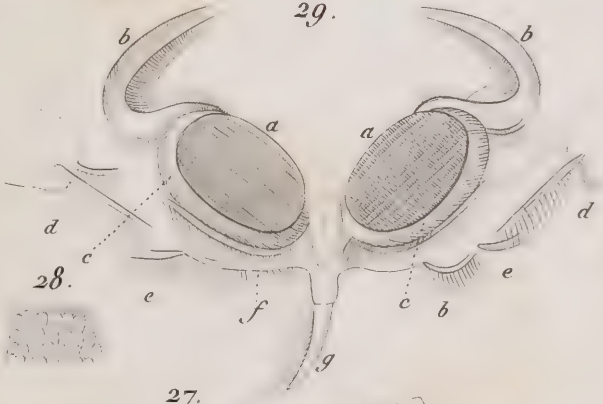

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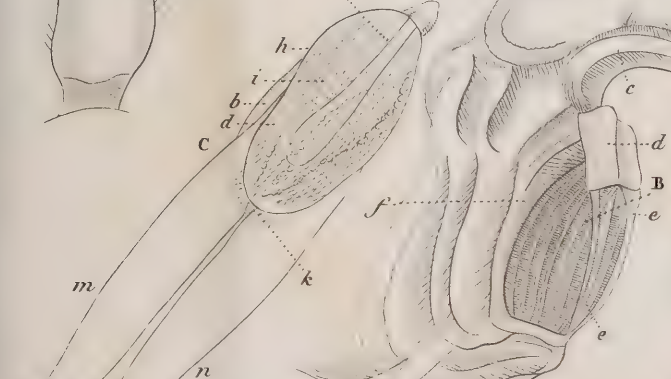

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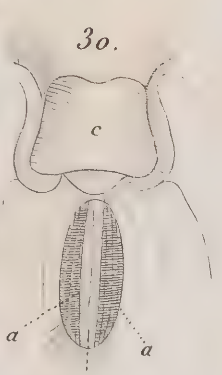

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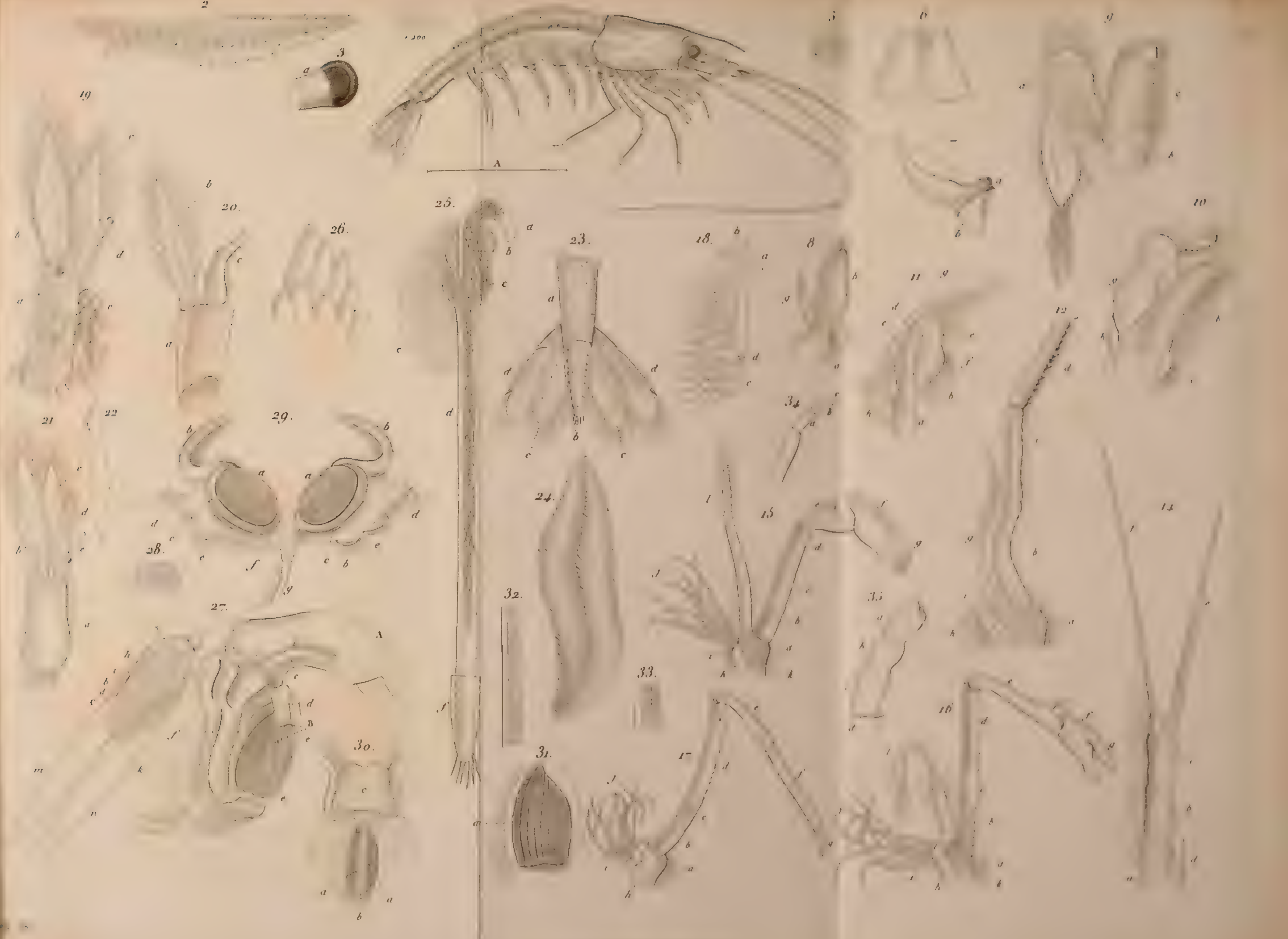

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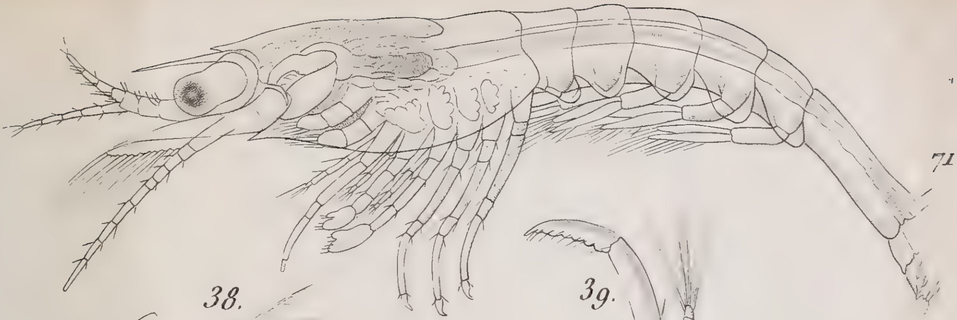

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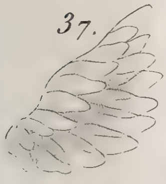

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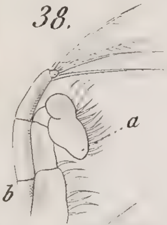

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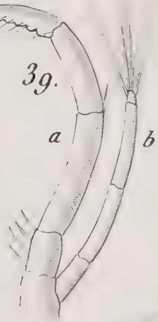

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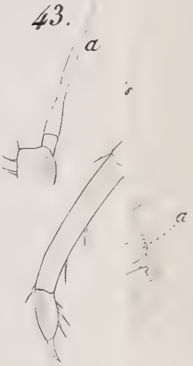

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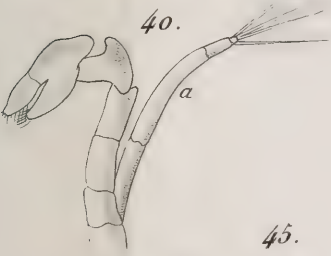

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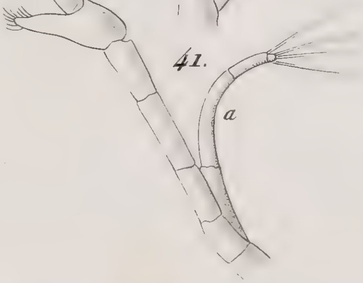

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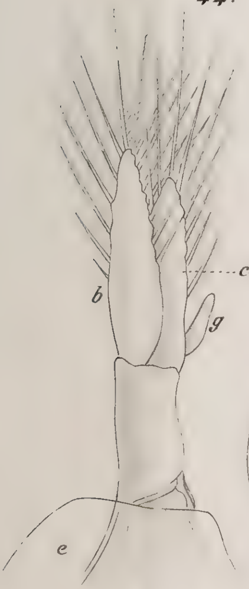

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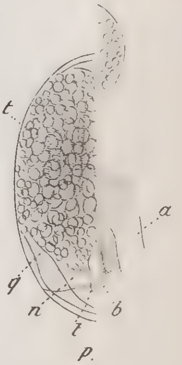

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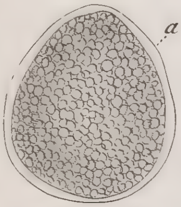

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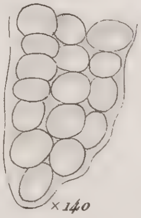

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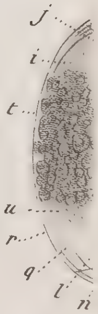

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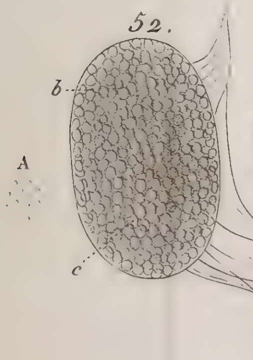

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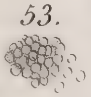

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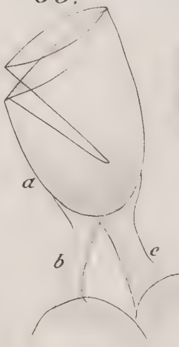

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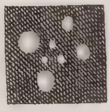

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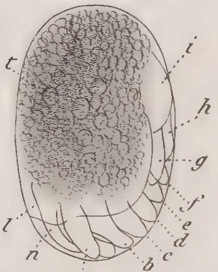

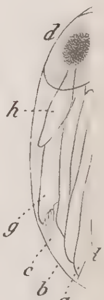

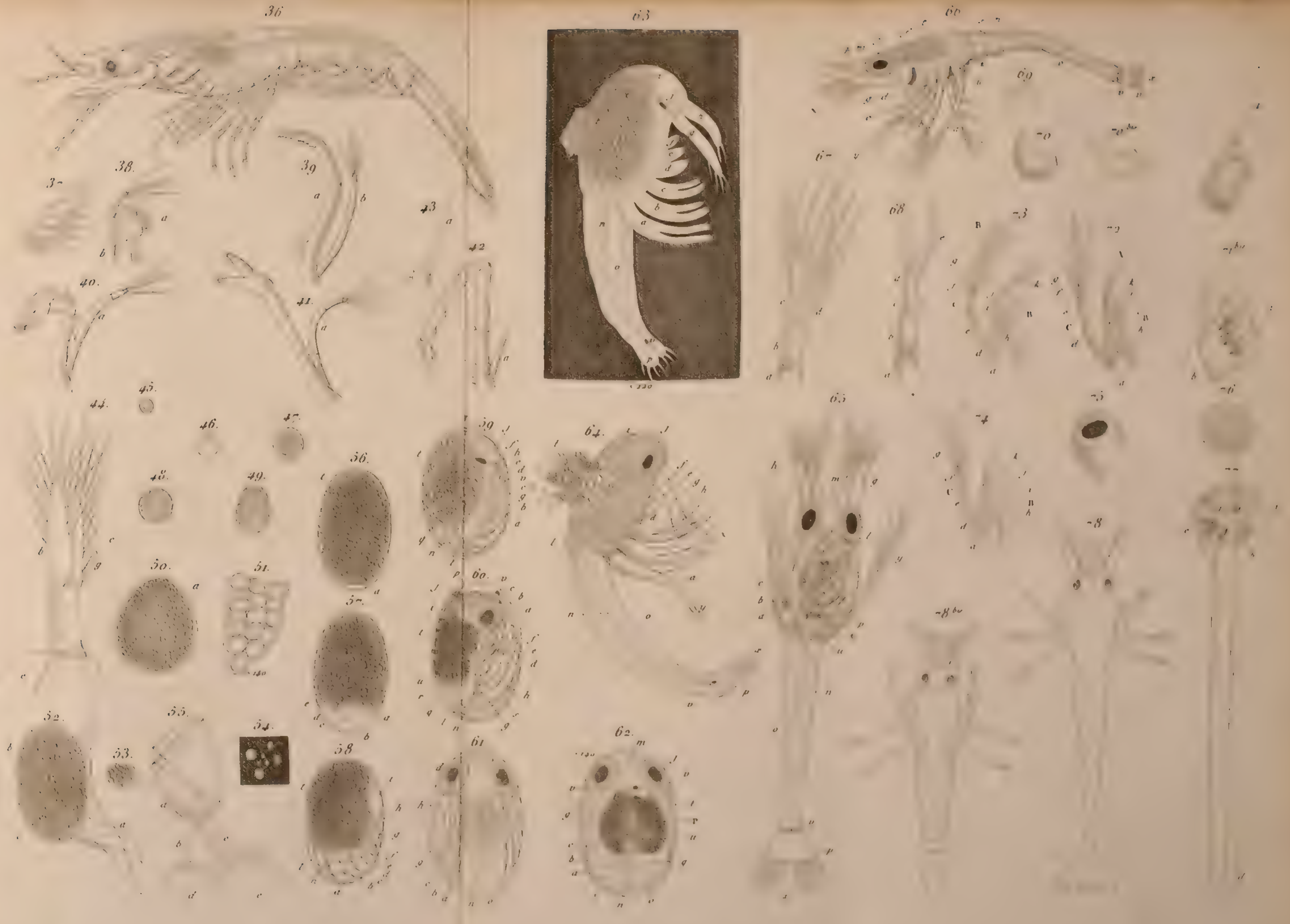

Développement de la Caridina Desmarestii.

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articulus 1^{us} viridis: thorax breviovatus: prothorax brevissimus, supra vix conspicuus: mesothoracis scutum latum; parapsidum suturæ non bene determinatæ; scutellum subrotundum, mediocre: metathorax brevis, declivis, obconicus: petiolus brevissimus: abdomen longiovatum, nitens, læve, fere glabrum, supra planum, subtus carinatum, apice acuminatum, thorace longius et angustius: pedes flavi; coxæ virides; femora viridia, apice flava; tibiæ fusco-cinctæ; tarsi apice fusci: alæ limpidæ; squamulæ piceæ; nervi fulvi; nervus humeralis ulnari multo longior, cubitalis radiali multo brevior; stigma minimum. (Corp. long. lin. 1; alar. lin. 1½.)

Closterocerus Xenodice, Mas et Fem. *Viridis cyaneo-varius, abdomen cupreum, antennæ nigræ, pedes flavi, femora viridia, tibiæ fusco-cinctæ, alæ fusco-maculatæ.*

Mas. Corpus sublineare, angustum; depressum, læte viride, nitens, læve, parce hirtum: caput transversum, brevissimum, inter oculos impressum; vertex sat latus; frons abrupte declivis: oculi mediocres: antennæ subsetaceæ, nigræ, hirtæ, thorace non longiores: thorax ovatus: prothorax brevissimus: mesothoracis scutum longitudine vix latius; parapsidum suturæ vix conspicuæ; scutellum subovatum: metathorax obconicus, declivis, mediocris: petiolus brevissimus: abdomen sublineare, cupreum, basi cyaneo-viride, thorace angustius non longius: pedes flavi; coxæ virides; femora viridia; tibiæ fusco-cinctæ; tarsi apice fusci: alæ mediocres, ciliatæ, fulvotinctæ, in discum obsolete fusco-maculatæ; squamulæ piceæ; nervi fulvi; nervus ulnaris humerali multo longior, radialis vix ullus, cubitalis brevissimus in alæ discum abrupte declivis; stigma minimum.

Var. β.—Tibiæ omnino fuscæ: alis maculæ vix conspicuæ.

Var. γ.—Alæ omnino limpidæ.

Fem. Cyaneo-viridis: antennæ setaceæ, thorace breviores: abdomen ovatum, thorace paullo brevius vix angustius. (Corp. long. lin. ⅓—⅔; alar. lin. ½—1.)

Var. β.—Tibiæ nigro-fuscæ, apice flavæ.

Platygaster Paches, Mas et Fem. *Atra, antennæ nigræ, pedes nigri, tarsi picei, alæ subfuscæ.*

Mas. Corpus convexum, atrum, nitens, læve, fere glabrum: caput transversum, breve, thorace vix latius; vertex sat latus; frons abrupte declivis: oculi picei, parvi, non extantes: antennæ nigræ: thorax ovatus: prothorax brevissimus, supra vix conspicuus: mesothoracis scutum longitudine latius; parapsidum suturæ non bene determinatæ; scutellum subrotundum, non productum: metathorax parvus, obconicus, declivis: petiolus brevis: abdomen longiovatum, thorace paullo angustius non longius; segmentum 1^{um} magnum, 2^{um} et sequentia breviora: pedes nigri, subæquales; femora clavata; genua picea; tibiæ clavatæ; tarsi picei: alæ subfuscæ; squamulæ piceæ. (Corp. long. lin. ½; alar. lin. ¾.)

Fem. Caput thoracis latitudine: antennæ subclavatæ: abdomen longiovatum, apice acuminatum, thorace angustius et paullo longius.

Inostemma Quinda, Fem. *Atra, antennæ flavæ, apice fuscæ, pedes flavi, alæ limpidæ.*

Corpus atrum, angustum, sublineare, convexum, læve, nitens, pubescens: caput transversum, subrotundum, thorace vix latius; vertex latus; frons abrupte declivis: oculi parvi, non extantes: antennæ subclavatæ, flavæ, apice fuscæ: thorax ovatus: prothorax brevissimus, supra vix conspicuus: mesothoracis scutum transversum, sulcis 2 indistinctis postice approximatis; parapsidum suturæ non bene determinatæ; scutellum obconicum, non productum: metathorax brevi-obconicus, declivis: petiolus crassus, brevissimus: abdomen longiovatum, glabrum, apice acuminatum, thorace paullo longius non angustius; segmentum 1^{um} maximum: pedes flavi, simplices, subæquales: alæ limpidæ, mediocres; squamulæ piceæ; nervi fulvi; nervus subcostalis alæ basi emissus nervulum in discum rejiciens et spatio brevi ante costæ medium in stigma subfurcatum decedens: nervus quoque spurius alæ basi emissus in discum excurrens et nervo subcostali nervuloque triangulum fingens. (Corp. long. lin. $\frac{1}{2}$; alar. lin. 1.)

Romilius (n. g.*) Zotale, Fem. *Ater, antennæ nigræ basi fulvæ, pedes fulvi, alæ limpidæ.*

Corpus longum, angustum, sublineare, atrum, vix convexum, obscurum, pilis canis pubescens, subtilissime et confertissime punctatum: caput transversum, breve, subrotundum, thorace vix latius; vertex latus; frons convexa, non impressa: oculi parvi, non extantes: antennæ nigræ, graciles, subclavatæ, prope os insertæ, thorace non breviores; articulus 1^{us} longus, subfusiformis, fulvus; 2^{us} longicyathiformis; 3^{us} et 4^{us} longi, lineares; 5^{us} et sequentes ad 10^{um} breves, approximati, clavam fingentes longifusiformem: thorax longiovatus: prothorax brevissimus, postice excavatus: mesothoracis scutum magnum, trisulcatum, longitudine vix latius; sulci laterales postice approximati; scutellum parvum, semicirculum fingens: metathorax mediocris, obconicus: petiolus brevissimus: abdomen longifusiforme, subtus convexum, apice acuminatum, thorace multo longius; segmentum 1^{um} breve; 2^{um} et 3^{um} magna; 4^{um} et 5^{um} paullo breviora; 6^{um} adhuc brevius: pedes fulvi, longi, graciles, simplices, subæquales; tarsis articulus 1^{us} longus, 2^{us} multo brevior, 3^{us} adhuc brevior, 4^{us} 3^{o} brevior, 5^{us} 4^{o} paullo longior: alæ mediocres, limpidæ, abdominis apicem dum quietem agunt non attingentes; squamulæ fulvæ; nervi fulvi; nervus subcostalis alæ basi emissus ad costæ medium eam attingens et fere ad alæ apicem percurrens; nervus 2^{us} quoque alæ basi emissus in discum excurrens ibique furcatus, furca antica nervo subcostali triangulum fingens, furca postica ad alæ marginem posticum decedens; nervus cubitalis rectus, sat longus, nervo subcostali ubi costam attingit emissus, stigmate terminatus minuto. (Corp. long. lin. 1$\frac{3}{4}$; alar. lin. 2$\frac{3}{4}$.)

[To be continued.]

XL.—*The Crustacea of Ireland. Order* Decapoda. By Wm. Thompson, Esq., Vice-Pres. Nat. Hist. Society of Belfast.

CRUSTACEA. Order Decapoda.

Decapoda Brachyuri.

Macropodia phalangium, Leach, Mal. pl. 23. f. 6; Desmar. p. 155. pl. 23. f. 3.
Stenorhyncus phalangium, *Edw. Crust.* tome i. p. 279.
Cancer phalangium, *Penn. Brit. Zool.* vol. iv. p. 11. pl. 9. f. 3, edition 1812.

This species has already been recorded by Templeton as "not uncommon on the Irish coast," and by Mr. J. V. Thompson as "very abundant in the deep water of the harbour of Cove." Ent. Mag. vol. iii. p. 371.

It has occurred very commonly to my scientific friends and myself when dredging in the loughs of Strangford and Belfast; and to Mr.

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* *Scelio Duris* (Monogr. Chalcid., ii. 61.) also belongs to this genus.

R. Ball at the South Islands of Arran*, as well as at Youghal and Dublin. The motions of this crab are slow, though its light body borne on such long legs would be popularly believed to indicate considerable powers of locomotion. The editor of the octavo edition of Pennant's 'British Zoology' (1812) remarks, that this crab "invests itself occasionally in leaves of *fuci* to ensnare its prey;" and Dr. Leach states that "it has been observed by Dr. Macculloch to be sometimes covered by fragments of a species of the Linnæan genus *Fucus*, which are attached to its body and legs." The first statement seems to me fanciful. The presence of fragments of fuci, &c. I should rather attribute to the spinous body, and the bristly arms and legs of great length intercepting adventitious substances, which in floating through the water come in contact with them, and (as Mr. R. Ball reminds me) are further retained there by a viscid slime covering the animal. Many marine productions, however, both of a vegetable and animal nature, have their birth, and grow to beauty on the shell of this as well as other species of our native Crustacea—corallines, sponges, zoophytes, algæ, &c. may thus be found. *Balani* occasionally cover the entire upper surface of the body of the crab.

Aug. 22, 1840.—On opening a thornback (*Raia clavata*), about 20 inches in length, caught in Belfast bay, I found its stomach entirely filled with *Macropodia phalangium*.

Achæus Cranchii, Leach, Mal. pl. 22 c; Edw. Crust. t. i. p. 281.

In the collection of Crustacea formed by Mr. J. V. Thompson, and now in the possession of the Royal College of Surgeons, Dublin, is a native specimen of this crab, which we may presume was obtained on the southern coast.

Inachus Dorsettensis, Leach, Mal. pl. 22. f. 1—6; Desm. p. 52. pl. 24. f. 1.
I. scorpio, *Edw. Crust.* t. i. p. 288.
Cancer Dorsettensis, *Penn.* vol. iv. p. 12. pl. 10. f. 1.

This species is stated by Mr. J. V. Thompson to be common in the harbour of Cove. Ent. Mag. vol. iii. p. 371. It is pretty commonly brought up from deep water in the dredge in the loughs of Strangford and Belfast, but in much smaller quantity than *Macropodia phalangium*. Under similar circumstances it has been procured by us on the western coast. Mr. R. Ball finds it in Dublin bay. All the examples of this crab which I have taken were invested with sponge, which generally covers over the body, arms, and legs; algæ and zoophytes likewise spring from it. In this extraneous matter some of the smaller crustacea find shelter, and, together with the other objects, render the capture of the *Inachus Dorsettensis* interesting far beyond the acquisition of itself.

Capt. Beechey, R.N. of H.M.S. Lucifer, brought up a specimen of this *Inachus* alive in the dredge from a depth of about 140 fathoms off the Mull of Galloway. See 'Annals' for Sept. last, p. 21.

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* On different parts of the western coast it was dredged by us in 1840.

Inachus leptochirus, Leach, Mal. pl. 22 B; Edw. Crust. t. i. p. 289.

In the 7th vol. of the 'Annals,' I noticed an example of this species having been dredged in Clifden bay, Connemara, during a natural-history tour made to that quarter by Mr. R. Ball, Mr. E. Forbes, Mr. Hyndman, and myself; and that about the same time a specimen was procured by Mr. R. Patterson in Belfast bay. Subsequently, I have seen specimens from the latter locality in the Ordnance collection.

Inachus dorynchus, Leach, Mal. pl. 22. f. 7. & 8; Edw. Crust. t. i. p. 288.

Among a number of Crustacea dredged in Belfast bay in the summer of 1838 by my friend Dr. J. L. Drummond, and kindly sent to me, was an example of this species. Specimens from the same locality are in the Ordnance collection.

Pisa tetraodon, Leach, Mal. pl. 20; Edw. Crust. t. i. p. 305; Desm. pl. 22. f. 1.

In the collection of Mr. R. Ball are two examples of this species which were obtained at Roundstone, Connemara.

In August 1841, I found several of the *P. tetraodon* thrown ashore at Compton, Isle of Wight.

Hyas aranea, Leach, Mal. pl. 21 A; Edw. Crust. t. i. p. 312.
Cancer aranea, *Penn.* vol. iv. p. 11. pl. 9. f. 1.*

Mr. Templeton has noticed this species as taken at Carrickfergus; and native specimens are in Mr. J. V. Thompson's collection. It has been obtained at Youghal and Dublin by Mr. R. Ball. We take it by dredging in the loughs of Strangford and Belfast, where too it is commonly thrown ashore. In the estuary at little more than half a mile from Belfast, a number of large specimens of this crab were captured in the month of October 1839, on the hooks attached to hand-lines, much to the surprise of the fishermen, who had never met with them so near the town before, or in brackish water. The lug-worm (*Lumbricus marinus*) was the bait attacked in this instance by the crabs. *Hyas aranea* was taken in the dredge at Bundoran, on the western coast, by our party in July 1840, and very small living specimens were found under stones between tide-marks at Lahinch, on the coast of Clare. In Mr. Hyndman's cabinet are two crabs of this species with oysters attached to their backs. The oyster (*Ostrea edulis*) on the larger crab is 3 inches in length, and five or six years old, and is covered with many large *Balani*. The "shell" or carapace of the crab is but 2¼ inches in length, and hence it must, Atlas-like, have borne a world of weight upon its shoulders. The presence of this oyster affords interesting evidence that the *Hyas* lived several years after attaining its full growth. Both crabs and oysters, though dead, were brought to Mr. Hyndman in a fresh state. The hairs on the body and legs of specimens in my collection are longer in the small than in the large individuals. On the north-east coast of Ireland the *H. aranea* is very much preyed on by the cod-fish.

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* This bad figure is not referred to by Leach.

In January 1840, I saw specimens of this crab of very large size on the coast near Edinburgh: the carapace of one which I measured was 3 inches in length, and the extent from the extremities of the first pair of legs, 11 inches.

Hyas coarctata, Leach, Mal. pl. 21 B; Edw. Crust. t. i. p. 312.

This species is set down as Irish in Mr. J. V. Thompson's catalogue, his specimens being most probably from the southern coast. In Mr. Ball's collection are examples from Youghal, and some dredged by him in Dalkey Sound near Dublin. In the loughs of Belfast and Strangford we take it very commonly with the dredge. I have seen an example from the Giant's Causeway—thus from the north to the south of Ireland the species prevails.

Dr. J. L. Drummond has found numbers of these crabs in the stomachs of cod-fish brought to Belfast market. The largest example I have seen was found in the mouth of a haddock taken at Killough, county Down. Its carapace is 2 inches 2 lines in length; each arm from base to point of claw 3 inches 7½ lines. The body, legs and arms of my specimens of *H. coarctata* are very much invested with zoophytes, sponges, and algæ.

Examples of this crab have been sent me from Portpatrick by Capt. Fayrer, R.N.; and I have myself obtained it on the opposite or eastern coast, at Newhaven near Edinburgh. Captain Beechey, R.N., brought up four examples of this species alive in the dredge from a depth of about 140 fathoms off the Mull of Galloway. See p. 21 of the present volume.

Maia squinado, Latr. Leach, Mal. pl. 18; Edw. Crust. t. i. p. 327; Desm. pl. 21.
Cancer spinosus, *Penn.*

Inhabits the southern coast. Native specimens of this crab are in Mr. J. V. Thompson's collection. Mr. R. Ball informs me that it is taken not unfrequently with lobsters about Youghal, where it is called horrid-crab; it is not brought to market, but is sometimes eaten by the fishermen—the carapace of a specimen from that locality in this gentleman's collection is 7 inches in length, and others are little inferior to it.

One of these crabs was brought to me at Ventnor, Isle of Wight, where it was taken in a crab-pot at the same time with a *Galathea strigosa.*

Eurynome aspera, Leach, Mal. pl. 17; Edw. Crust. t. i. p. 351; Desm. pl. 20. f. 2.
Cancer asper, *Penn.* vol. iv. p. 13. pl. 10. f. 3.

Marked as Irish in Mr. J. V. Thompson's collection. It is rather a rare species, and an inhabitant of deep water. In Strangford lough a single specimen was taken in the dredge by Mr. Hyndman and myself in Oct. 1834, and on a subsequent occasion we obtained several individuals in the same locality. It has been dredged in Belfast bay by Dr. J. L. Drummond. Mr. R. Ball once found this species cast ashore on the Dublin coast after a great storm; and in his collection are fine specimens from Roundstone, on the western coast.

Capt. Beechey, R.N., brought up a crab of this species alive in the dredge from a depth of 50 fathoms off the Mull of Galloway. See p. 21 of the present volume.

Xantho floridus, Leach, Mal. pl. 11; Edw. Crust. t. i. p. 394; Desm. pl. 8. f. 2.

Seems to be a local species. It is recorded as Irish in Mr. J. V. Thompson's catalogue. In the Ordnance collection are specimens from three localities on the Antrim coast—Carnlough, Larne and Carrickfergus; and in Mr. R. Ball's cabinet there is an example from Dublin bay. In July 1840, this species was found commonly by Mr. E. Forbes and myself under stones between tide-marks at Lahinch, county Clare:—the entire claws of these specimens (all under half adult size) are of a pale brown colour, but very different in shade from any part of the body of the animal: in Leach's 'Malacostraca' the claws are described and figured as black, but a variety stated to be rare is said to have "the tops of the claws of the same colour with the other parts of the animal."

Xantho rivulosus, Risso. Edw. Crust. t. i. p. 394.

A fine example of a crab so named, and which is an addition to the British fauna, is in the Ordnance collection—it was taken at Portrush, county of Antrim, in July 1839. Capt. Portlock informs me that having been at once identified as the *X. rivulosus*, more specimens were assiduously sought for in the locality, but in vain. I fully agree with him in considering it the *X. rivulosus* as described by M. Edwards. It seems to me a well-marked species. It is said to inhabit the Mediterranean and the western coast of France.

Cancer pagurus, Leach, Mal. pl. 10; Penn. vol. iv. p. 7. pl. 3; Desm. p. 103. pl. 8. f. 1.
Platycarcinus [*Latr.*] pagurus, *Edw. Crust.* t. i. p. 413.

This, the common edible crab, is taken on all quarters of the Irish coast, and is held in good estimation for the table. It is the only species brought on sale to Belfast market. In January 1836, a specimen weighing 9½ lbs. was taken in Strangford lough, and in Aug. 1841, one of 9 lbs. was obtained in Belfast bay: these were of extraordinary magnitude for the north of Ireland to produce, although not larger than what are commonly to be seen in the London market. M. Edwards mentions this species as sometimes exceeding 5 lbs. in weight on the coast of France, t. i. p. 414. The ordinary method of taking these crabs on the coast of Ireland is the same as that resorted to in England—"wicker-baskets in the form of a wire mousetrap." But Mr. Hyndman has seen them sought after and captured at Donaghadee by persons thrusting a piece of iron hooked at the end into the crevices of rocks, the ordinary retreat of the crabs at low-water; a similar practice, according to Mr. Ball, is pursued in the south. In spring and summer they are considered to be in season at Belfast and Dublin*—between Christmas and Easter is the period mentioned by Leach. As this is not a littoral species it may be worth remarking, that several very small individuals (their carapace an inch in breadth) were found by Mr. E. Forbes and myself in the month of July, frequenting the shore at Lahinch between tide-marks.

Pilumnus hirtellus, Leach, Mal. pl. 12; Edw. Crust. t. i. p. 417; Desm. p. 111. pl. 2. f. 1.
Cancer hirtellus, *Penn.* vol. iv. p. 9. pl. 6. f. 1.

This appears to be a widely distributed species, occurring in small numbers where found. It is enumerated among the native Crustacea in Mr. J. V. Thompson's catalogue; and in the first vol. of the Ordnance Survey is noticed as obtained at Carnlough, county of Antrim. In the course of a day's dredging in the loughs of Strangford and Belfast, one or two individuals of this species have generally been procured by us. Mr. R. Ball has taken it on the Dublin coast by dredging, and has likewise found it inhabiting the beach between tide-marks at Portmarnock—by Mr. E. Forbes and myself it was similarly found at Lahinch. Specimens from Youghal are in Mr. Ball's collection, and from Courtmasherry harbour—also in the county of Cork in Mr. G. J. Allman's. The figures of this species given by Leach and Pennant are good and characteristic: Desmarest's figure (Consid. Crust. pl. 11. f. 1.) is not so.

Pirimela denticulata, Leach, Mal. pl. 3; Edw. Crust. t. i. p. 424; Desm. p. 106. pl. 9. f. 1.

Of this small and handsomely sculptured crab I have seen but two Irish examples. The first was found amongst a number of species of various kinds collected on the coast of Antrim and Down by Dr. J. L. Drummond, and kindly submitted to my investigation. The other was obtained alive by Mr. E. Forbes and myself between tide-marks at Lahinch on the coast of Clare.

In August 1841, I found three specimens washed ashore at Compton, Isle of Wight.

Carcinus mænas, Leach, Mal. pl. 5; Edw. Crust. t. i. p. 434.
Cancer mænas, *Penn.* vol. iv. p. 6. pl. 2. f. 1.

This species is common around the coast of Ireland, and is popularly known by the name of *parten* in the north, the *crab,* par excellence, being the *Cancer pagurus*†. On gravelly, sandy, and muddy shores I have remarked this species to be about equally common. Mr. R. Ball states that it inhabits holes in the hard mud, but whether made by itself he cannot say. The *Gonoplax bispinosa* is said by Mr. Cranch "to live in excavations formed in the hardened mud, and that their habitations, at the extremities of which they live, are open at each end." Leach, Mal. Pod. Brit. In the ordinary rejectamenta of the tide it occurs much more frequently than any other species, and generally in a young state. The carapace of the largest example in my collection, from Belfast bay, is 3¼ inches in breadth and 2½ in length. Pennant and Leach state that this crab is sent in quantities to London, where it is eaten by the poor; and M. Edwards observes that it is used in like manner in Paris. In other large towns also I have remarked it on sale, but in Belfast, the *Cancer pagurus*, as has been already remarked, is the only species of crab used as an article of food. The *Carcinus mænas* is much in request by juvenile anglers and fishermen for bait. I have seen it so used by persons fishing for flounders (*Platessa flesus*) in the river Bann, near Portstewart: by Dr. J. L. Drummond I am informed that its liver is the chief bait used by boys at Larne in fishing for the young of the *Merlangus carbonarius*, called there *pickock*: Mr. R. Ball states that when these crabs are about to change their shells or have recently done so, they are sought for under the sea-weeds at low-tide by the fishermen at Youghal, chiefly as bait for flat-fish, and are superior to anything that can be used—in this soft state they are here called *pil-crabs* (qu. peeled-crabs). At the quays of Youghal, these crabs are caught in great numbers simply with fish-entrails tied to a string. They prove such an annoyance to boys fishing at Belfast quay by consuming their bait, that all of them caught in the act are instantly trampled to death, and hence may have arisen the proverb of "crab's allowance." Mr. Ball was once witness to the body of a person drowned when bathing at Youghal, being taken out of the water an hour and a half after his disappearance, when several of these crabs were engaged eating the eyes of the corpse.

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* Rutty, writing seventy years ago, remarks—"The greatest quantity of crabs and lobsters supplying Dublin comes from the Isle of Man; but the best are those from Lambay, Howth and Skerries; for the former by longer carriage and agitation fret and waste themselves, and thereby become much worse food. They are also brought from the Saltee Islands, about 80 miles from Dublin, by the fishermen of Bullock, Dunleary and Howth."—Nat. Hist. Dublin, vol. i. p. 374.

† This species being distinguished as *the* crab, I should hope with Mr. T. Bell (Zool. Trans.) that it were considered the type of the genus *Cancer.*

M. Edwards remarks that the name of "Crâbes enragés" is applied to this species on the coast of Normandy; and it is sufficiently appropriate, for when arrested in their rapid progress over the beach, and well (as remarked by that author) they can run, they instantly throw up their claws in anger to attack the intruder, and if not guarded against, will give him *feeling* evidence of their displeasure. M. Edwards too observes, that they have been kept alive for a long time out of the water, but he would perhaps hardly be prepared to expect that they are so tenacious of life, as shown in the following instance, communicated by Mr. R. Patterson:—"I remember above twenty years ago spending one of my school vacations at Holywood, Belfast bay, and on one occasion was so annoyed by the common crabs (*C. mænas*) eating the bait from my fishing hook, that at length I took a number of the crabs and by way of retaliation buried them alive in the garden. Some time after, but how long I cannot now remember, I was tempted to dig them up to see what kind of a state they were then in, when to my surprise they were not only living, but able to move about as actively as ever. Wishing to verify the remembrance of this boyish prank, I took some of the crabs in the summer of 1837, threw a piece of sea-weed on them and buried them to the depth of twelve or fourteen inches, the soil above them being closely beaten down. When leaving the country seventeen days afterwards I found them living, and one individual was so brisk that he caught the spade in his claws. I have had no opportunity of ascertaining what is the limit of the time they would live under such circumstances."

When at the Isle of Wight in the summer of 1841, I remarked this to be the most common crab on all parts of the coast. At Ventnor it was flung from the crab-pots as useless.

I don't know whether the *C. mænas* be found in the Adriatic Sea, but a crab which I saw under one of the bridges at Venice seemed to be this species. I remarked several crab-pots set at the sea or eastern entrance of one of the canals here where the bottom is oozy.

Portumnus variegatus, Leach, Mal. pl. 4 ; Desm. pl. 4. f. 2.
Platyonichus latipes, *Edw. Crust.* t. i. p. 436.
Cancer latipes, *Penn.* vol. iv. p. 5. pl. 1. f. 4.

Is occasionally found thrown ashore on extensive sandy beaches. I have seen examples from Macgilligan and Portrush on the northern, and Portmarnock on the eastern coast. Leach mentions this as "the most common species of the Malacostracous animals that inhabit our coasts," and that "it is found thrown on all the sandy shores of Great Britain in great abundance, especially during storms." On the Irish coast it is quite a local species. In the course of dredging in the open sea off Down, in the loughs of Strangford and Belfast a single example only of this species has occurred either to my friends or to myself. In dredging on the Connaught coast, and about Dublin bay on the opposite side of the island I never saw this species brought up—some of the localities dredged over were sandy and off extensive beaches of the same nature. After severe storms chiefly, we find it cast ashore upon the sand. *Corystes cassivelaunus* is much more generally distributed on the sandy coasts of Ireland than *Portumnus variegatus*.

Portunus puber, Leach, Mal. pl. 6 ; Edw. Crust. t. i. p. 441 ; Desm. p. 93. pl. 5. f. 1.
Cancer velutinus, *Penn.* vol. iv. p. 8. pl. 4. f. 1.

Of this species, the velvet crab of British authors—noticed by Templeton and J. V. Thompson as Irish—I have seen examples from all quarters of the coast. Dr. J. L. Drummond informs me that it is taken commonly at Bangor (co. Down) by boys, who find it lurking under large stones in rocky pools at low water. Between tidemarks we found it common at Lahinch. Mr. R. Ball states that at Youghal, where the species grows to a large size, and is known by the name of Kerry Witch, it is caught along with *Carcinus mænas* with fish-guts used as bait.

Portunus depurator, Leach, Mal. pl. 9. f. 1 & 2.
P. plicatus, *Edw. Crust.* t. i. p. 442.
Cancer depurator, var.* *Penn.* vol. iv. p. 6. pl. 4. f. 2.

From Templeton noting this crab merely as "found on the sands at Dunfanaghy, co. Donegal, July 13, 1815," and from the specimen named *P. depurator* in Mr. J. V. Thompson's collection (now in the College of Surgeons, Dublin,) being in reality *P. lividus*, it might be supposed that the species is not common. We have however dredged it in Strangford lough, in the open sea off Down, and on the Connaught coast. During some weeks spent at Bangor, near the entrance of Belfast bay, in the autumn of 1835, I found this to be the most common species of crab thrown by the waves upon the beach—*Carc. mænas* being the common one found *alive* between tide-marks. Mr. R. Ball mentions that the *P. depurator* is local, but abundant where it does occur about Youghal.

Leach describes this species—"P. testa subcomplanata lineis elevatis et transversis abbreviatis e granulis compositis," and Pennant attributes to it (his "*Cancer depurator*, var.") a tuberculated surface. What is just quoted from Leach applies admirably to all my specimens, small and large—his figure shows the appearance tolerably well. This author remarks, that it "is by far the most common species [of *Portunus*] that inhabits the British coast†."

Portunus lividus, Leach, Mal. pl. 9. f. 3 & 4.
P. holsatus, *Edw. Crust.* t. i. p. 443.

Is not common. Templeton mentions it as found by him "on the shore at Dunfanaghy." We have dredged it on more than one occasion in Belfast bay, and have obtained it on the beach at Carnlough, county of Antrim. In Mr. R. Ball's collection are several specimens which were dredged in Dublin bay. Leach mentions his having seen but two examples of this species.

Portunus corrugatus, Leach, Mal. pl. 7. f. 1 & 2; Edw. Crust. t. i. p. 443.

The only specimens of this species which I have seen are some fine examples from Larne and Carrickfergus in the Ordnance collection, and a single specimen obtained on the Dublin coast by Mr. R. Ball. Mr. J. V. Thompson notices *P. corrugatus* as inhabiting the harbour of Cove, but those so named in his collection are the wrinkled variety of *P. depurator*.

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* M. Edwards refers to Pennant's other figure of *C. depurator* with doubt, as identical with *P. marmoreus*, Leach.

† *Portunus marmoreus*, Leach, Mal. pl. 8; Edw. Crust. t. i. p. 442.

Mr. J. V. Thompson observes that, "several species of *Portunus* inhabit the harbour of Cove, as *depurator, arcuatus, corrugatus* and *marmoratus*, of which the last is perhaps the most common." Ent. Mag. vol. iii. p. 278. On examining the specimens from Cork in that gentleman's collection, labelled as *P. marmoratus*, I find that they are the *P. pusillus* of Leach. Of *P. marmoreus* I have not yet seen any Irish examples.

Portunus pusillus, Leach, Mal. pl. 9. f. 5—8; Edw. Crust. t. i. p. 444.

Generally inhabits deep water. It is ordinarily taken by us when dredging in the loughs of Strangford and Belfast; at the Killeries in Connemara it has similarly occurred as well as in Dublin bay. In the south too, it has been taken by Mr. J. V. Thompson in the harbour of Cove—see note on *P. marmoreus,* p. 282. I have several times found it in the stomachs of fishes, in one instance in a *Trigla Gurnardus,* taken in the open sea off Down.

At Compton, in the Isle of Wight, I procured several of this species thrown by the waves upon the beach.

Portunus arcuatus, Leach, Mal. pl. 7. f. 5 & 6.
P. Rondeletii, *Edw. Crust.* t. i. p. 444.

Has been taken occasionally by us when dredging in deep water in the loughs of Strangford and Belfast; and has been found cast ashore at Portmarnock by Mr. R. Ball. It was procured by our party in the summer of 1840 when dredging in Killery and Roundstone bays on the western coast. Specimens are in Mr. J. V. Thompson's collection, and it may be presumed, from Cork. All the examples of this species which have occurred to myself were taken in the dredge excepting on one occasion (Oct. 1) at Killinchy, on the shore of Strangford lough, when looking to the refuse in a number of small boats which had been employed the night before in herring fishing, I found in every one of them several of these crabs which had been brought up in the nets, and not one of any other species.

Leach remarks that "*P. arcuatus* differs from *P. emarginatus* only in the form of the anterior part of the shell, and may be no more than a variety of that species." M. Edwards considers them the same. All the specimens preserved (about thirty) from the different localities mentioned,—and there is about an equal number of both sexes ranging from a very small size up to that of Leach's figure of *P. emarginatus,*—have the anterior part of the shell corresponding to that of *P. arcuatus,* or in other words, arched:—"fronte arcuato integro" is Leach's description of it.

Pinnotheres pisum, Leach, Mal. pl. 14. f. 1—3, female; Desm. p. 118. pl. 11. f. 3.
P. varians, *Leach, Mal.* pl. 14. f. 9—11, male.
P. Latreillii, *Leach, Mal.* pl. 14. f. 7 & 8, young female*.
P. pisum, *Edw. Crust.* t. ii. p. 31.
Cancer pisum, *Penn.* vol. iv. p. 3. pl. 1. f. 1, female.
C. minutus, *Penn.* vol. iv. p. 5. pl. 1. f. 2, male.

Templeton has noticed this species as "dredged up in Belfast lough." It is commonly found in *Modiolus vulgaris* on the Irish coast, where it is of much more frequent occurrence than in the locality in which Dr. Leach endeavoured to ascertain the number found in a certain quantity of mussels. In the article Crustaceology (Edin. Ency.) it is remarked that—"in one hundred of *Mytilus modiolus*, Dr. Leach found three of this species." On opening eighteen specimens of the *Modiolus vulgaris* of various size—the produce of dredging off Bangor (co. Down) in October 1835—I found fourteen individuals of *P. pisum*, all females: in one shell only two of the crabs occurred. I have subsequently opened quantities of these *Modioli* with similar results as to the number of the *Pinnotheres*, but in all other instances more crabs were obtained from a like number of shells in consequence of more of the *Modioli* producing two of them.

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* These synonyms are brought together agreeably to the views of M. Edwards, who further observes that *P. Cranchii,* Leach, seems not specifically different from *P. pisum,* and that *P. Montagui,* Leach, is perhaps a variety of the same. With M. Edwards I agree in the opinion that *P. Cranchii* is not distinct from *P. pisum*; but *P. Montagui* as described and figured by Leach rather seems to me a different species. About twenty male speci-

The smallest *Pinnotheres* I have seen was found by Mr. Hyndman in a living *Cardium exiguum* dredged by us in Strangford lough in Oct. 1834. It is a male: the carapace is under a line in length; the entire breadth of the crab from the extremities of the outstretched legs is 3 lines*. The *Cardium* is under 3 lines in length, and barely exceeds that admeasurement in breadth, so that the crab when in the position just mentioned must have on both sides touched the walls of its chosen prison. The *Pinnotheres* likewise inhabits the *Cardium edule*. Before me is one of these crabs, of which the carapace is 2 lines in breadth, obtained by Mr. Hyndman in a full-grown *C. edule* from Strangford lough; but from the Sligo coast, where this shell attains an extraordinary large size, a crab with a carapace 4 lines in breadth, and with outstretched legs 7 lines across, was once kindly brought to me by Lord Enniskillen. Mr. R. Ball informs me that on two occasions he obtained a great number of the *Pinnotheres*, and which were all males, from the *Cardium edule* taken at Youghal†—about nine out of every ten cockles contained a crab. On opening oysters from Tenby, in Wales, he has likewise procured the *Pinnotheres*. This crab, like the *Pagurus*, occupies different species of shells according to its size, and at every age generally selects such as with outstretched legs it would fill from side to side—this of

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mens before me as I write, have all the anterior part of the shell produced as in *P. Latreillii* and *P. varians* of Leach (pl. 14.), and consequently unlike the two-lobed anterior part of *P. Montagui* and *P. veterum* of the same author. All of my specimens but one have the large hands of *P. varians*—the exception has them no larger than in *P. Latreillii*: surely this species, as represented by Leach, is a male—M. Edwards notes it as a young female.

* In the 'Entomological Magazine,' vol. iii., the *Zoea* of this *Pinnotheres* is described and figured by Mr. J. V. Thompson.

† With respect to another part of the coast of Cork, Mr. J. V. Thompson observes—"Let any person take a sweep with a dredge on any bank of old mussels, *modioli* or *pinnæ*, where the *Pinnotheres* have been before observed, and almost every shell will be found to contain one full-grown female, some two, and others three, independent of young ones and males, which occasionally occur in common with the females. * * * As the fishermen at Cove often have recourse to those shell-fish for bait, I have had a pint and upwards of the pea-crab brought to me out of the mussels obtained in a few hauls of the dredge."—Ent. Mag. vol. iii. p. 86.

course will not apply to the allied species *P. pinnæ*. On one occasion I found a female *Pinnotheres*, of adult size, alive in a *Modiolus vulgaris* six days after it had been taken from the sea—the shell-fish died on the fourth day.

" *Pinnotheres pinnæ.*"

In the collection of Mr. J. V. Thompson there is a specimen so named and marked as Irish. It is imperfect, but appears to be the *P. veterum* of Leach, made synonymous by this author with *P. pinnæ*. Writing on *Pinnotheres* in the 'Entomological Magazine' (vol. iii. p. 89) Mr. J. V. Thompson remarks—" On this part [Cork] of the Irish coast but two species have been hitherto observed, viz. *P. pisum* and *P. pinnæ*, the latter being found in *Pinnæ* and *Modioli*."

Gonoplax angulata, Edw. Crust. t. ii. p. 61.
G. bispinosa, *Leach, Mal.* pl. 13.

Mr. J. V. Thompson's collection contains an Irish specimen of this crab, marked "rare." Mr. R. Ball has found the species in the stomachs of cod-fish, purchased in the markets of Youghal and Dublin, and commonly in those brought to the former place—four of these crabs is the greatest number he has obtained from the stomach of a single fish. In the Ordnance collection is a fine example of *G. angulata*, labelled as procured at " Bangor [co. Down], January 1839."

On examination of several specimens of *Gonoplax* preserved by Mr. Ball, I cannot—judging from Leach's figure of the one and Desmarest's of the other—see any grounds for considering *G. angulata* and *G. rhomboidalis* as distinct species. My specimens accord better with the latter, but may at the same time be considered intermediate : instead of the second spine on each side is the little knob or protuberance characteristic of *G. rhomboidalis*. From the descriptions of the two *species* there appears to be little more of difference than the relative length of spine—and this certainly is most trivial—on each side of the carapace.

Ebalia Bryerii, Leach, Mal. pl. 25. f. 12 ; Edw. Crust. t. ii. p. 129.

The first native example of this species which came under my observation was obtained in the autumn of 1838 by Mr. Hyndman, when dredging in deep water in Belfast bay. In the Ordnance collection are two specimens similarly obtained from the same locality in the following year.

Capt. Beechey, R.N., brought up two examples of this species alive in the dredge from 50 fathoms water off the Mull of Galloway. See p. 21 of the present vol.

Ebalia Cranchii, Leach, Mal. pl. 25. f. 7—11 ; Edw. Crust. t. ii. p. 129.

A single specimen was dredged from deep water in Roundstone bay, Connemara, by our party in July 1840. Mr. R. Ball subsequently found several on the beach at Portmarnock after a storm.

Captain Portlock informs me that this species was taken by deep dredging in Belfast bay in the course of the Ordnance Survey.

Ebalia Pennantii, Leach, Mal. pl. 25. f. 1—6; Edw. Crust. t. ii. p. 129; Desm. pl. 7. f. 1.
Cancer tuberosus, *Penn.* vol. iv. p. 12. pl. 10. f. 2.

Although this species must be considered rare, it is less so than the two already noticed—*E. Bryerii* and *E. Cranchii.* A specimen (from Cork?) is in Mr. J. V. Thompson's collection. In Sept. 1836, one was dredged up from deep water in Belfast bay by Mr. Hyndman, and, subsequently, another was similarly obtained there by Dr. Drummond. Several were procured in the same locality by the collectors attached to the Ordnance Survey, who likewise dredged a specimen in Larne lough. To Mr. G. J. Allman I am indebted for one which he found in Dublin bay.

Three examples of the *E. Pennantii* were brought up alive in the dredge from a depth of 50 fathoms off the Mull of Galloway by Capt. Beechey, R.N. See p. 21 of the present vol.

Atelecyclus heterodon, Leach, Mal. pl. 2; Edw. Crust. t. ii. p. 143.
A. septemdentatus, *Desm.* p. 8. pl. 4. f. 1.

Mr. Templeton notices a crab of this species as found by him "in the stomach of a cod-fish Jan. 17, 1817." In Mr. J. V. Thompson's collection is an Irish specimen probably from Cork. In Jan. 1839, I obtained a perfect adult male from the stomach of a brill (*Pleuronectes rhombus*) taken at Ardglass, county Down; it somewhat exceeds in size that figured by Leach, which again is larger than Montagu represents the species; the hairs are not confined to the arms and legs, the carapace being likewise covered with them. The circumstance of this species being found in the stomachs of the cod and brill would indicate—were we not otherwise informed—its being an inhabitant of deep water. In the Ordnance collection are examples of this crab from Moville (co. Donegal), Portrush, near the Giant's Causeway, and Carrickfergus. Mr. R. Ball has twice obtained it on the Dublin coast: on one occasion many specimens were found by him on the beach at Portmarnock after a great storm. Montagu remarks that several of the *A. heterodon* which he procured were all males, and Dr. Leach mentions females as extremely rare. The several Irish examples I looked to with reference to their sex, were likewise males. It may be remarked, that in this species the females might, from the very narrow form of the abdomen, be without due attention regarded as males.

In the month of September 1835, I obtained several small living specimens of *Atelecyclus* (carapace about 2 lines in length) in rock-pools accessible at low-water at Bangor, county Down. They differ a little in the contour of the shell (which is not so round) and in the form of the teeth between the orbits from the adult *A. heterodon,* but on account of their diminutive size, and in the absence of specimens of all ages for comparison, it would I conceive be rash to consider them otherwise than this species.

Corystes cassivelaunus, Leach, Mal. pl. 1.
C. dentatus, *Edw. Crust.* t. ii. p. 148; *Desm.* p. 86. pl. 3. f. 2.
Cancer cassivelaunus, *Penn.* vol. iv. p. 9. pl. 7.

"Found on the shore at Cushendall bay," Templeton. Marked as "Irish" in Mr. J. V. Thompson's collection. This species is commonly found after storms on the sandy shores of the north and east of Ireland. In the month of August 1836, a number of very small specimens were dredged from a sandy bottom in the open sea off Dundrum, co. Down, by Mr. Hyndman and myself. The smaller the individuals of this species, the antennæ are the longer in proportion to the size of the body: some of these with the shell or carapace 3 lines in length have the antennæ 6 lines long—on this account the young present a very singular and grotesque appearance: none of those taken on this occasion had the carapace more than 6 lines in length. In the stomach of a smooth dog-fish (*Mustelus lævis*) captured in Belfast bay, I found a perfect adult specimen of this crab.

Dr. J. L. Drummond informs me that he has frequently taken this species at Bangor at neap-tides, when he detected it by the antennæ (which were always in contact with each other) being protruded above the surface of the sand for nearly their whole length. Mr. R. Ball, who has found these crabs in abundance at Youghal and Dublin, has seen them shake themselves down in the sand so as to conceal all but the antennæ as described. He is of opinion that the antennæ are not thus protruded for any special object, but simply that the animal feels itself sufficiently concealed when the body is covered.

[To be continued.]

XLI.—*A Catalogue of Sicilian Plants; with some remarks on the Geography, Geology, and Vegetation of Sicily.* By JOHN HOGG, Esq., M.A., F.L.S., F.C.P.S., &c.

IN this Catalogue, in addition to those plants which I observed myself during the few weeks I remained in Sicily, many others, that I could learn from good authority to be indigenous, or naturalized in the island, will be found. I have followed the arrangement and the genera adopted by Persoon in his 'Synopsis Plantarum' (edit. 1805–7), as that is by far the most convenient and portable manual for a traveller, and have also referred to the works of other authors for the descriptions of such species as are new, and are not given in Persoon's two volumes.

The orders which contain the most numerous species are, *Ranunculaceæ, Cruciferæ, Caryophylleæ, Leguminosæ, Umbelliferæ, Compositæ, Labiatæ* and *Gramineæ.*

There are twenty-five plants whose specific name, *Siculus*, is taken from the island; viz. one for each of the following genera, *Valeriana, Poa, Festuca, Scabiosa, Convolvulus, Athamantha, Sium, Linum, Allium, Erica, Saponaria, Dianthus, Si-*

lene, Rosa, Rubus, Ranunculus, Orontium, Barbarea, Erysimum, Cheiranthus, Ononis, Astragalus, Carlina, Erigeron, Centaurea; seven to which Mount Etna has given a name (*Ætnensis*), *Viola, Berberis, Scleranthus, Spartium, Crepis, Seriola, Anthemis*; six are called from the Nebrodes, now the Monte di Madonia, *Viola, Arabis, Alyssum, Sisymbrium, Senecio, Cineraria*; two from Messina, *Convolvulus* and *Melilotus*; and one from Agrigentum, *Ervum.*

Little is yet known of the Sicilian Cryptogamia. The Mosses, Hepaticæ, Algæ, Lichens, and Fungi have not been much examined. Of the Ferns, I only noticed *Adiantum capillus Veneris, Aspidium filix mas, Asplenium Adiantum nigrum, Asplenium Ceterach, Polypodium vulgare,* and *Pteris aquilina,* and these are likewise common to Britain. Those Phanerogamous species which are natives of Britain, I have appended in a separate and alphabetical catalogue.

I lament that I have not been able to make any observations on the geographical* distribution of the plants in the island, or to trace the several species which vary the most, or which remain nearly fixed in similar situations; but will only mention, that from the great variety of strata, minerals and soils, as well as from the considerable altitudes to which some of the mountains attain, and particularly from its natural position, Sicily itself may be regarded as a connecting link (at least in a botanical view) between Europe and Africa; that the subject is of all others the most inviting, and the most certain to grant a rich harvest to any botanist who may make the tour of Sicily, and may have time to prosecute such researches. I have given a short introductory account of the island, with respect to its geography, geology, mineralogy and vegetation, in the third volume of Loudon's Magazine of Nat. Hist. pp. 105—116; and likewise, some "Observations on the Classical Plants of Sicily," in Dr. Hooker's Journal of Botany, pp. 98—203. My object, therefore, in the following Catalogue, is to endeavour to afford to those travellers who are admirers of the elegant science of botany, some tolerably accurate idea of

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* I must refer those who are desirous of ascertaining the localities of many of the Sicilian plants in other districts of the Mediterranean to the following useful papers: "Enumeratio Plantarum quas in Insulis Balearibus collegit J. Cambessedes, earumque circa Mare Mediterraneum distributio Geographica," given in the Mémoires du Muséum d'Histoire Naturelle, tome xiv. Paris, 1827; and "Essai d'une Flore de l'Ile de Zante," par H. Margot et F. G. Reuter, published in tome viii. p. 249, and tome ix. p. 1, of the Mémoires de la Société de Physique et d'Histoire Naturelle de Genève, Gen. 1839-41. This latter paper contains a great many Romaic, or modern-Greek, names of the plants of Zante. I may also add, for a list of the like names, the Appendix to the tenth volume of Dr. Sibthorp's splendid Flora Græca may be examined.

~~XXXVI~~

em Ann. Nat. Hist. vol, 20 (1847)

Adam White Esq
with best respects
of the author

XXII.—*Additions to the Fauna of Ireland.* By William Thompson, Esq., Pres. Nat. Hist. and Phil. Society of Belfast*.

[Continued from p. 176.]

Crustacea.

Order *Decapoda.*

1. *Stenorhynchus tenuirostris,* Leach.

On examining some fine *Stenorhynchi* dredged in Belfast bay from a depth of twenty to twenty-three fathoms (shelly sand) in Oct. 1846 by Mr. Hyndman, I found that like specimens obtained there, but from a much less depth, some years before, had more characters in common with this species than with *S. phalangium.* The rostrum, though longer than in the latter—three lines in length in a specimen whose carapace from its base to the hinder extremity is ten lines—is not of the extreme length of that of *S. tenuirostris* :—instead of being " longer than the peduncle of the external antennæ," it is not so long. But " the series of minute spines on the inner part of the arm, the body altogether more elongated, and the spines more acute" than in *S. phalangium,* mark my specimens as *S. tenuirostris.*

The preceding notes were made on a comparison of these examples with the descriptions of Leach and Bell. Having subsequently taken specimens to London and compared them with those in the British Museum described by Leach, the result was the same. I therefore look upon *S. tenuirostris* and *S. phalangium*—although extreme forms are very distinctly marked—to be in reality but one species. It may be added, that in one of the two Irish examples of what I have called *S. tenuirostris* taken to the British Museum, the wrist has the form attributed to that species, and in the other, that attributed to *S. phalangium.* Both of these individuals were added to that collection. The *Sten. Egyptius,* Edw., it need hardly be remarked, is quite different from those under consideration ; it is alluded to in consequence of being the only other species of the genus.

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* *Teredo malleolus.* I hasten to correct an error respecting the species so called at p. 163 and p. 174. The opercula or pallets having since been found, prove that it is not *T. malleolus.* They are quite similar to those of the *T. bipalmulata* of Delle Chiaje, Mem. iv. t. 54. f. 22 and 23, and approximate those of the species (*T. palmulatus,* Lam.) considered the same by Philippi, in the first vol. of his ' Enum. Moll. Siciliæ,' t. 1. f. 8 ; but if the *shells* there figured represent perfect specimens, my species differs from his. The genus *Teredo* seems to require a rigid revision. Having sent specimens to Professor E. Forbes and Mr. Hanley, who possess in London much better means of working out the subject than I have, the positive identification of the species is left to them. The genus *Teredo* will I believe be included in the 1st part of their ' History of British Mollusca,' to appear in November. Mine is at all events a form now noticed for the first time as introduced by shipping to any port of the United Kingdom.

Erratum in note to p. 161.—Instead of " The name is I believe unpublished," it should be—The name was I believe left unpublished by Dr. Leach.

The questions occur:—is the *S. tenuirostris* a deep-water, a local, or a geographical variety? The following remarks, though all that can be given, have not any very definite bearing on these points. Leach mentions it as a very common inhabitant of all the deep water off the coast of South Devon. Couch in his 'Cornish Fauna,' part 1. p. 64, states that it is "common at the depth of from two to twenty fathoms [*]." M. Edwards says of *S. longirostris* [†], Fabr. (sp.), which he makes synonymous with *S. tenuirostris*, Leach—but Mr. Bell thinks that they may be distinct—that it inhabits the Manche and the Mediterranean.

S. phalangium is noted by Leach as "very common in the mouths of rivers and in estuaries." Couch has never met with it on the coast of Cornwall. M. Edwards notes it as very common on the coasts of the Manche and the Ocean.

2. *Eurynome scutellata*, Risso.

A specimen of *Eurynome* dredged on the same occasion as the last species having exhibited the tubercles on the cardiac region—the ten noticed by Bell, p. 47, as ranged round the central one—massed together in the form of a shield or escutcheon, and the series anterior to them on the central line (longitudinally) of the carapace having presented a similar appearance, suggested the specimens being the *E. scutellata*, Risso. This indeed was rather indicated by the *name* of the species than by any particular definition in the description of it:—"De petits écussons arrondis, rouge et jaune pâle, couvrent le test de ce joli crustacé [‡]." On examining other specimens in my collection and finding great diversity as to the isolation and approximation of the tubercles so as to form shields in the different individuals, I became certain that the *E. aspera* and *E. scutellata* are but one species, the latter being a state of the former with the tubercles drawn together so as to form shield-like patterns. The shields in all the specimens examined, except the first-mentioned, show that they are formed by the junction of the tubercles: in it however no trace of the separate tubercles is visible, but instead, the five on either side the central one on the cardiac region are all fused together. Those forming the smaller shield anterior to it are likewise fused together so as to leave no trace of the number of tubercles forming it.

Having understood that my friend Professor Bell had authentic specimens of *E. scutellata* from the Mediterranean, I compared my specimens with them, and found a perfect identity as to species. He had considered the *E. scutellata* as distinct, but when my reasons for considering *E. aspera* and it but as one species were explained, he at once on examination of the specimens coincided in my opinion. The reduction of these two supposed species to one, leaves *E. aspera* the only representative of the genus *Eurynome.*

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[*] *S. phalangium* proper is taken in the north of Ireland within this range of depth.

[†] The only character given for this species in M. Edw. 'Hist. Crust.' vol. i. p. 280, is that the rostrum exceeds in length the peduncle of the external antennæ.

[‡] Risso, 'Hist. Nat. de l'Eur. Mérid.' vol. v. p. 21. M. Edwards considered the *E. scutellata* to be so unsatisfactorily described that he could make nothing of it. (Hist. Crust. vol. i. p. 352.) The figure too is execrable.

3. *Gebia deltura,* Leach, Malac. t. 31. f. 9, 10; Bell, Brit. Crust. p. 225 (part 5); Edw. vol. ii. p. 314.

In the stomach of a Haddock (*Gadus Æglefinus*) taken off Newcastle (co. Down) on the 6th March 1847, I was interested in finding two perfect arms of this rare fossorial species, hitherto known to have been obtained only on the coast of Devonshire*. They are just of the size represented by the authors quoted. The stomach of the fish was with the exception of them filled with the remains of *Ophiura texturata.* It was from the same locality that I obtained the arms—and these only—of the two other fossorial genera *Callianassa* and *Calocaris* in March 1839. The reason of these parts alone of the animal being taken may perhaps be owing to their being above the surface of the bank, ready to lay hold of any food within their reach, while the body remains concealed, and the ground-feeding fish seizing on them, the Crustacean sacrifices its exposed members rather than give up its whole body to its assailant.

Professor Bell remarks:—" The difference of the depth which the various species of this fossorial family inhabit is very remarkable; the present species [*Gebia stellata*] with *Callianassa subterranea* being found in a sand-bank, when digging for *Solenes,* whilst *Calocaris Macandreæ* was dredged from the astonishing depth of 180 fathoms." (Hist. Brit. Crust. p. 224.)

The difference here noticed is interesting insofar as the facts narrated, but can scarcely be considered characteristic of the respective species. My specimens of *Callianassa* and *Calocaris,* if not taken from the stomach of the same individual fish, a *Platessa pola,* Cuv., were procured from two fishes of that species taken at the same sweep of the trawl-net on the same bank at a depth of ten fathoms. The *Gebia* was probably taken at a similar depth.

NOTE.

? *Alauna rostrata,* Goodsir, Edin. New Phil. Journ. vol. xxxiv. p. 130. pl. 4?

The occurrence of an individual of this species to me at Newcastle (co. Down) in Aug. 1836 was noticed in the 'Annals,' vol. xiii. p. 435, accompanied by a mark of doubt as to the species. When lately looking over some Crustacea dredged from five fathoms at the Skerries on the Dublin coast, in the autumn of 1845, by Mr. R. Ball and Professor Edw. Forbes, I was gratified to see several specimens quite similar to the one that I had myself taken. They are about six lines in length, and agree in all respects with Goodsir's description, but present at the same time a striking character which he has not noticed—in the carapace being almost wholly covered by series of minute granular spines (if such an expression may be used) with the points directed forward, and hence my "?" as to species. The describer of *Alauna* obtained but the one specimen.

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* No observation of this kind is hazarded with respect to any species, without reference having been made to the general 'Hist. des Crust.' of M. Edwards. It has supplied the data with respect to continental works, on which all such remarks are made in this communication.

Order *Stomapoda.*

4. *Cynthia* —— ? Thomp. (J. V.), Zool. Res., Memoir 3, p. 55; Edw. vol. ii. p. 462.

Among some of the more minute Crustacea taken at Strangford lough in May 1840 by Mr. R. Patterson is a *Cynthia*, but hardly sufficiently perfect to be determined. The species on which the genus was founded was taken between Madeira and Barbadoes. Mr. H. Goodsir added the genus to the British fauna from examples obtained on the east coast of Scotland.

5. *Themisto** *brevispinosa*, Goodsir, Edin. New Phil. Journ. vol. xxxiii. p. 177. pl. 2. f. 9.

In September 1835 I obtained an individual of this species in rock-pools between tide-marks at Bangor, co. Down.

NOTE.

Mysis chamæleon, Thomp. (J. V.), Zool. Res., Memoir 2, pl. 2. f. 1—10.

The first examples described under this name were obtained in the harbour of Cork. Specimens from each side of the island have come under my notice. At Bangor, within the entrance of Belfast bay; Ballywalter, on the open coast of Down (both strictly marine localities); in Dundrum bay, same county (in brackish water); and in the tidal river Lagan at Belfast; I found them common in the summer or autumn of 1835 and 1836. In the three first-named places they were taken between tide-marks; in rock-pools in the two first, and in a sandy bay in the last. I have seen it among Crustacea brought up in the dredge in water five fathoms deep off the Dublin coast by Mr. R. Ball; have received it from the west coast of Cork (Professor G. J. Allman), and have taken it myself along the shores of Connaught. A detailed note of June 22, 1846, is as follows. When in company with Mr. Hyndman today at Strangford lough, I took a number of this species (which is admirably figured in the work quoted) in brackish water at Ardmillan. They were in extraordinary profusion, and viewed in the water were at first sight mistaken for the fry of fish†. They appeared to be all about the same size, and adult, as were the specimens taken, the largest exceeding 1¼ inch in length from point of anterior scales to end of the caudal plates.

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* This was used as a generic name by Guérin previous to its publication as such by Goodsir. Guérin's genus belongs to the order *Amphipoda* and family *Hyperiadæ*. *Macromysis* is substituted by Mr. Adam White for Goodsir's *Themisto* in the Catalogue of the Crustacea in the British Museum, p. 81.

† I have generally remarked the *Mysis* to be much more numerous where fresh-water enters the sea than in pure sea-water.

Mr. J. V. Thompson remarks that *M. chamæleon* "has never been observed like the other species in any great numbers together, but scattered and solitary, often associated with *M. vulgaris*," p. 29. But where they came under my observation in this instance, a small arm of the lough a few feet in depth presented the extraordinary spectacle of being quite alive with them. They were all swimming in one direction, towards the sea, and moving regularly and horizontally onward.

It is difficult, owing to the figure being deficient in elaboration, to judge whether or not Montagu's *Cancer astacus multipes*, Linn. Trans. ix. (p. 90) pl. 5. f. 3, be this species, but I agree with Mr. J. V. Thompson that the *Cancer flexuosus*, Müll. Zool. Dan. vol. ii. p. 34. pl. 66, is so. M. Edwards (Hist. Crust. vol. ii. p. 458) observes, that spines are represented on the sides of the abdomen in Müller's figure of *M. flexuosus*, but although such an appearance is presented in the plate, surely it is the mere setæ of the subabdominal fins which are intended to be represented. The specimens taken on this occasion were all of one hue, as the millions in the water seemed to be; this was a very pale olive or "pellucid cinereous," as ascribed to the *M. Leachii* by Mr. J. V. Thompson, from which they differed only in having black instead of "reddish rust-coloured" spots. Each segment of the body in every specimen examined (about thirty in number) is marked with a round black spot, whence, in some, arborescent arms branch off; in others there is no arborescent appearance, but the segment is dotted regularly over with extremely minute points. To

Mysis vulgaris, J. V. Thomp. *ibid.* p. 30. pl. 1,

my attention was first directed by remarking among those captured, individuals wanting the black spot on the segments of the body, when, singling out three of these, they proved to be of this species—all the others were *M. chamæleon*. The segments however exhibit an arborescent veining, though wanting the black central spot. These specimens are one inch in length, or one-fifth less than the largest *M. chamæleon* taken with them. If the proportion of the one species to the other in the myriads seen were as in those taken, the numbers of *M. vulgaris* to the other were but as one to ten. Some of these (*M. vulgaris*) produced young in the phial, like those represented by Müller in the 'Zoologia Danica,' pl. 66, and by Kroyer in the 'Voyages Scandin. et Lapon. Crustaces,' pl. 9.

Ballyhome, Belfast bay, July 4, 1846. From the rocks at the entrance of this bay I captured in pure sea-water a number of the *Mysis* of various sizes, all of which proved to be *M. chamæleon*. The extraordinary difference in colour of these specimens, all taken together within the space of a few yards, well justified the specific name. They were brown, green, pink, red, and hyaline, some as transparent in colour as the water itself: a few displayed a whitish longitudinal stripe down the back. With the view to a more particular examination of the colours at home, they were placed in a phial of sea-water, but were all dead on my arrival there a few hours afterwards. Of the many species of the more minute forms of Crustacea which I have preserved in spirits, the *Mysidæ* were always among the first to become soft and to decay. The specimens under consideration, when examined in spirits, exhibited on each segment of the body a black spot, whence more or less of an arborescent appearance was manifest.

M. chamæleon has occurred to me much more frequently as well as in greater numbers on the Irish coast than *M. vulgaris*. In very shallow pools between tide-marks at Lahinch (co. Clare) the latter was procured by Professor E. Forbes and myself. It frequents the tidal river Lagan at Belfast.

Order *Amphipoda.*

6. *Orchestia,* sp.

Bangor, co. Down, 1835, W. T.; distinct from *O. littorea.*

7. *Amphithöe fucicola,* Leach (sp.); Edw. vol. iii. p. 32. *Pherusa fucicola,* Leach, Linn. Trans. xi. p. 360.

Obtained many years ago at Youghal by Mr. R. Ball. Leach only appears to have noticed this species: he remarks, "Habitat inter fucos in Damnoniæ australis mari rarius."

8. *Amphithöe rubricata,* Mont. (sp.); Edw. vol. iii. p. 33.

Procured in Strangford lough in Oct. 1839 by Mr. Hyndman and myself. In shallow rock-pools between tide-marks on the open coast at Springvale, co. Down, I obtained several specimens in July 1846. Previously noticed only as found on the south coast of Devon by Montagu.

9. *Amphithöe,* sp.

Bangor, co. Down, 1835, W. T.; distinct from the preceding and *A. obtusata,* on comparison with the specimens in the British Museum.

10. *Gammarus marinus,* Leach; Edw. vol. iii. p. 46.

Strangford lough, 1837, Mr. Hyndman and W. T; Ballysodare, co. Sligo, Mrs. Hancock.

Noticed by Leach as found on the south coast of Devonshire and by M. Edwards on the coast of France.

11. *Gammarus campylops,* Leach; Edw. vol. iii. p. 48.

Taken at high water in the tidal river Lagan, above the bridge at Belfast, May 1836, Mr. Hyndman and W. T.

Shore of Loch-Ranza, Isle of Arran, where the species was discovered by Leach, the only locality hitherto noticed.

12. *Gammarus longimanus,* Leach (sp.). *Mæra longimana,* Leach MSS.

A single one taken with last:—same as Leach's unique specimen in the British Museum.

13. *Gammarus punctatus,* Johnst. Zool. Journ. vol. iii. pp. 177, 490, I found in a case formed by itself among the branches of *Corallina officinalis* growing in pools between tide-marks at Springvale, co. Down, in July 1846. The species was determined by comparison of mine with those from Berwick presented by Dr. Johnston to the British Museum.

14. *Opis typica,* Kroyer, Voy. Scandinavie et Laponie Crust. pl. 17. f. 1.

Dredged in Strangford lough, Oct. 1839 and June 1846; on the latter occasion picked off Algæ brought up from a depth of fifteen to twenty-three fathoms, where they grew on soft sandy ground—several specimens procured on each occasion.

A description of this species appears in Kroyer's 'Naturhist. Tidssk.' 2nd binds, 1st hæfte, 1846, p. 46.

15. *Anonyx* (Kroyer), sp.

Several specimens of an *Anonyx* of various sizes were dredged from five to six fathoms' depth—pure sandy bottom—off Bangor, Belfast bay, in July 1846, by Mr. Hyndman and myself. They are distinct from and more elegant in form, colour and markings than any of the seven species—*A. nanus, littoralis, ampulla, holbollii, plautus, Edwardsii, tumidus*—represented by Kroyer in such parts of the 'Scandinav. et Lapon.' as were in the British Museum library in July 1847*.

They are all plain or uniform in colour, while mine has conspicuous stellate markings; it is also of a somewhat deeper tint generally, and has the antennæ longer than any of those named.

Although a proper description cannot (on account of the state of my eyes) be drawn up, some idea may be given of this *Anonyx*—(which is well worthy of the name of *elegans*)—by the following note:—length of body 6 lines; of upper antennæ 1 line; of lower antennæ 4 lines; general colour yellowish pink; eyes red; lateral or abdominal plates adorned with scarlet stellate markings, of which there are five or six on those nearest the head: they become gradually fewer on those towards the tail, so that not more than one appears on the hinder plates. These markings render it very beautiful. My *Anonyx* is distinct from a British species (locality unknown) in the collection of the British Museum. As this is not included in the lately published Catalogue of the Crustacea therein contained, the present is the first notice of the genus as British.

16. *Anonyx,* genus ?,

or rather a form between it and *Stegocephalus,* Kroyer, was dredged from a depth of twenty-three fathoms (shelly sand) in Belfast bay in Oct. 1846 by Mr. Hyndman.

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* Since the above was written, Kroyer's 'Naturhist. Tidssk.' for 1846 has come under my notice, and in it ten species of *Anonyx,* including the seven already named, are described (in *Latin*): the additional species are *A. gulosus, A. minutus,* and *A. Vahlii.*

17. *Cerapus falcatus,* Mont. (sp.), Linn. Trans. vol. ix. t. 5. f. 2. *Jassa pelagica,* Leach.

I agree with M. Edwards (vol. iii. p. 61) in considering the forms bearing these two names as one species: Leach looked upon them as different. Both, as distinguished by the form of the claw, are among my specimens, of which a number were dredged in Strangford lough in Oct. 1839 by Mr. Hyndman and myself. Among the roots of a large plant of the tangle (*Laminaria digitata*) brought me from Donaghadee by Edmund Getty, Esq., in Aug. 1846, were several specimens.

Devonshire (Mont.) and the Bell Rock (Leach) are the only published localities I have seen for this species.

18. *Hyperia galba,* Mont. (sp.); Edw. vol. iii. p. 77.
Cancer Gammarus galba, Mont.

Found in the pouches of *Rhizostoma Cuvieri* on the Dublin coast in the autumn of 1838 by Mr. Hyndman.

Only noticed by Montagu as found on the south coast of Devon.

19. *Hyperia Latreillii,* Edw. vol. iii. p. 76.

Obtained at Youghal by Mr. R. Ball nearly thirty years ago ("about 1818") in great numbers in the cavities of a *Rhizostoma.* This species has not been noticed by any English author, but specimens of Leach's marked "British coast" are in the British Museum. M. Edwards mentions it as found on the coast of France*.

20. *Lestrigonus,* sp.

An individual of this genus is in the same phial with the last, and was probably obtained from the cavities of the same *Rhizostoma* with them. It has become so soft in the spirits from incipient decay as barely to admit of specific description. With respect to the genus, I have the opinion of Mr. Bell in addition to my own. Of the two species of this genus described, one is from India, the other from Greenland. (Edw. Hist. Crust. vol. iii. p. 82.)

Order *Læmodipoda.*

21. "*Caprella lobata,* Müll.," Kroyer, Voy. Scand. et Lapon. Crust. pl. 25. f. 3*a*†.

Specimens attached to zoophytes (*Sertulariæ* chiefly) dredged from about ten fathoms on sand near Portaferry, Strangford lough, Oct. 1839, Mr. Hyndman and W. T.

22. *Caprella tuberculata,* Goodsir, Edin. New Phil. Journ. vol. xxxiii. p. 188. pl. 3. f. 6.

Specimens taken with the last.

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* The species of these *Hyperiæ* were determined as above by Mr. Adam White. On my subsequent examination of *H. galba* insofar as I dare magnify the specimen, it seemed to be a *Metœcus,* Kroyer (which Montagu's may likewise be), but whether *M. medusarum* I had not the means of determining. The subject must be further examined into.

† 3 *b.* presents a very different form, but is considered a variety only.

Guérin, in his 'Iconographie,' &c. pl. 28. f. 1, represents a species which he calls by this name; it is from the Mauritius (Texte Descrip. Crust. p. 24).

23. *Caprella acuminifera,* Leach; Edw. vol. iii. p. 107. pl. 33. f. 21—26.

I found a few examples of this species living among *Corallina officinalis* in shallow rock-pools between tide-marks at Springvale, co. Down, in July 1846.

24. *Ægina*? *longispina,* Kroyer, Voy. Scand. &c. Crust. pl. 19. f. 3*.

A single individual of this very fine, large and spinous form was taken with the two first-noticed *Caprellæ.* My specimen differs only from that represented by Kroyer in having one or two more spines retrally on the body: it is wholly red like his, and has retained this colour in spirits to the present time. Goodsir's *Caprella spinosa* (Edin. New Phil. Journ. vol. xxxiii. p. 187. pl. 3. f. 1) approaches very near to this species, if it be not the same; it is described as having "the whole body of a pale white colour." *Caprella linearis* of authors (already recorded as Irish) was taken with this as well as *C. lobata* and *C. tuberculata.*

I have merely identified my *Caprellæ* with the species described, and without any attention being bestowed on the variety of form that the same species may assume. Indeed the only attempt to investigate this subject known to me is that of Kroyer with respect to *C. lobata*:—see my note under this species.

Order *Isopoda.*

25. *Tanais Dulongii,* Audouin (sp.); Edw. vol. iii. p. 142.

Two Crustaceans which I found on *Alaria esculenta* washed ashore at the Giant's Causeway in July 1839, seem so like this species as figured in the great French work on Egypt, that I am disposed (in which Mr. Adam White agrees with me) to consider them the same. They do not exhibit any point of difference, but are not quite perfect. The second species of *Tanais* described by M. Edwards is from Naples. M. Kroyer has described three species in the 'Isis,' one of which is from Bahia, and the other two from Madeira.

26. *Jæra albifrons,* Mont. (sp.); Leach; Edw. vol. iii. p. 150.

Common under stones in shallow rock-pools between tide-marks at Bangor, Belfast bay (1834, W. T.), and in Strangford lough, both strictly marine localities—also obtained in the tidal river Lagan at Belfast. Known only hitherto as found on the coast of Great Britain.

27. *Sphæroma Prideauxiana,* Leach.

An example of this species, taken in a towing-net where the water was several fathoms in depth in Belfast bay in August 1846 by Mr. R. Patterson, was brought to me alive. Its colour was pale brown with dark brown markings; its motions when undisturbed were lively—when touched, it rolled itself into a ball.

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* Described in Kroyer's 'Naturhist. Tidssk.' 1st binde, 5th hæfte, 1845, p. 476.

My specimen, which on comparison with the original one from "Devon" (where only it has yet been noticed) in the British Museum, must be considered this species, at the same time cannot be said to differ from *S. curtum* (a view in which Mr. Adam White coincides):—it is intermediate in size, form, &c. between the individual examples of the two species in that collection. M. Edwards offers some remarks on the difficulty of distinguishing *S. curtum* from Leach's description (Hist. Crust. vol. iii. p. 209).

28. *Sphæroma Griffithsii,* Leach MSS.? Brit. Museum Catal. p. 103.

Three *Sphæromæ* obtained in Belfast bay and Strangford lough (1835, &c.) are similar to the two poor original specimens from Torbay, so named in the British Museum, excepting in the caudal plate being rather more rounded in my specimens *.

29. *Cymodocea truncata,* Mont. (sp.); Edw. vol. iii. p. 214.

Two examples procured between tide-marks at Cultra and Rockport, Belfast bay, Mr. Hyndman and W. T., 1837. Leach remarks that the species is found amongst Fuci and is very rare: Edin. Ency. vii. 433. Mine agree with his specimen from Devon (the only known locality) in the British Museum.

30. *Cirolana hirtipes,* Edw. vol. iii. p. 236. pl. 31. f. 25.

My specimens are similar to those so named in the British Museum (but whence these were obtained is unknown), and agree with the description and figure of M. Edwards, whose only locality indicated for the species is the Cape of Good Hope! The first individuals which came under my notice were found in the midst of a mass of ova in a boiled cod-fish sent me from Portpatrick about ten years since by Lieut. Little, R.N. In September 1841, several found adhering to a skate (*Raia batis*) taken in Belfast bay, were brought to me by Mr. Hyndman. I have also procured it on the gills and once alive in the stomach of a holibut (*Hippoglossus*) from the last-named locality. It was enumerated in my 'Report' under the name of *Cirolana Cranchii,* the only known British form of the genus.

31. *Eurydice pulchra,* Leach; Edw. vol. iii. p. 238.

This pretty species has been taken at Larne by Mr. R. Patterson (1838) and at Carrickfergus, between tide-marks, by Mr. Hyndman (March and April). Bantham, Devon, the original locality (Leach, Linn. Trans. xi. 370), appears to be the only one yet noticed for *E. pulchra.*

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* See Guérin, Iconog. Règne Anim. Crust. texte descriptif, p. 27, for remarks on *Sphæroma serratum,* Fabr. (sp.), and *S. globator,* Pall. (sp.), as two distinct species.

32. *Munna Kroyeri,* Goodsir, Edin. New Phil. Journ. vol. xxxiii. p.365. pl. 6. f. 2.

Taken in a towing-net on the surface of Strangford lough in May 1840 by Mr. R. Patterson.

The genus *Munna* was described by Kroyer in 1841, and Mr. Goodsir's *M. Kroyeri* was obtained in July 1842 in the Firth of Forth.

Legion *Entomostraca.* Order *Copepoda.*

33. *Cetochilus septentrionalis,* Goodsir, Edin. New Phil. Journ. vol. xxxv. p. 336. pl. 6. f. 1—11.

Many of this species were taken with the last in May 1840 :—in October 1843 this *Cetochilus* was described by Mr. Goodsir.

34. *Canthocarpus minuticornis,* Müll. (sp.) *Cyclops minuticornis,* Müll.

Obtained in Strangford lough, Oct. 1839, Mr. Hyndman and W. T.

Order *Siphonostomata.*

35. " *Caligus minutus,* Otto, Nordm. ;" Edw. vol. iii. p. 450, and Règ. Anim. pl. 77. f. 2.

I obtained a specimen off a holibut in Belfast market in February 1837. It differs very little—hardly in species—from *C. hippoglossi,* Kroyer, Tidssk. bind i. p. 625. pl. 6. f. 3 (1st series).

M. Edwards notes the species as found on the coast of Bretagne in the branchial cavity of the "Bars" [Basse. *Labrax lupus,* Cuv.].

36. *Caligus curtus,* Kroyer, Tidssk. 2 bind, tab. 104. pl. 1. f. 1 *m.*

On *Raia maculata* taken in Belfast bay, April 1839, W. T. See M. Edwards, 'Hist. Crust.' vol. iii. p. 451, for remarks on *C. curtus,* Müll. &c.

37. *Caligus diaphanus,* Nordm., Kroyer, bind ii. pl. 1. f. 3. (Reference to pl. 1 at p. 104.)

Nordmann obtained this species off *Trigla hirundo.* I have procured it not only on that fish but on the following, purchased in Belfast market :—*Trigla pini, Pagellus centrodontus, Scomber scombrus, Caranx trachurus, Merlangus carbonarius, Merlucius vulgaris, Lota molva, Platessa vulgaris* and *Pleuronectes maximus.* The specimens were taken in March, August, October and December (1837).

M. Edwards (vol. iii. p. 452) refers only to the above-cited authors for this species.

38. *Caligus pectoralis,* Kroyer, Tidssk. bind i. p. 628. pl. 6. f. 4.

M. Edwards notices this as found on turbot, plaice and other flatfishes (vol. iii. p. 454). I have procured it on *Platessa flesus, P. limanda, Solea vulgaris, Scomber scombrus, Zeus faber* and *Conger vulgaris,* brought to Belfast market in March 1837 : they adhered to all the exposed parts of the body of the various fishes, and not to the gills, &c.

This species is brought under the genus *Lepeophtheirus* by Nordmann (Mikrog. Beitrage, p. 30), but Kroyer writing on it subsequently calls it *Caligus*. M. Edwards marks Müller's *Lernea pectoralis,* Zool. Dan. tab. 33. f. 7, with doubt as being identical with that of the two authors quoted.

39. *Caligus Nordmanni,* Edw. vol. iii. p. 455. and Règ. Anim. pl. 77. f. 1,

I have procured on *Gadus morrhua* brought to Belfast market in March, November and December 1837. M. Edwards notes this species as found at Nice on the skin of a "Mole" [*Orthagoriscus mola*].

40. *Caligus vespa,* Edw. vol. iii. p. 456,

I have found on *Salmo trutta* taken in Dundrum bay (co. Down), Aug. 1836, and on the same species captured in the sea at Donaghadee in March; on *Salmo eriox* from the latter locality in Dec.; on *Salmo salar* taken on ascending two of the co. Antrim rivers from the sea in June and July. M. Edwards indicates this species merely as found in the gills of a salmon. *C. vespa* was noticed this year for the first time as found on the English coast. See British Museum Crust. p. 118.

41. *Caligus sturionis,* Kroyer, Tidssk. bind i. tab. 6. f. 6. ("Explication" of tab. p. 628); Edw. vol. iii. p. 457*—

I obtained on *Trigla hirundo* and *T. pini* brought to Belfast market in November 1839.

42. *Trebius caudatus,* Kroyer, Tidssk. bind ii. p. 30. tab. 1. f. 4. (Explication of tab. p. 104); Edw. vol. iii. p. 458*.

This truly generic form was obtained by Kroyer on a *Squalus galeus* taken in the Kattegat. My specimens—both male and female—were found adhering externally over both sides of the body of a *Raia batis* captured in Belfast bay in September 1838.

Order *Lerneada.*

43. *Chondracanthus gibbosus,* Kroyer, Tidssk. bind i. p. 252. tab. 2. f. 4.

Taken in the pouches of a *Lophius piscatorius* in Dublin, December 1839 (W. T.), and from pouches of three individuals captured in Belfast bay, November 1841. M. Edwards brings this species with doubt under *C. Delarochiana* (Cuv. Règ. Anim.), which has been found on the tunny, *Thynnus vulgaris*. *C. Lophii,* Johnston, Loudon's 'Mag. Nat. Hist.' ix. 81. f. 16, already recorded in the 'Annals' (vol. v. p. 257) as Irish, seems to me identical with *C. gibbosus,* Kroyer.

44. *Lernæopoda galei,* Kroyer, Tidssk. bind i. tab. 3. f. 5, *a*—*f*; Edw. vol. iii. p. 516*—

was found by its describer on the fin of a *Squalus galeus,* Linn.;

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* Kroyer only quoted.

on which species from Belfast bay I likewise obtained my specimen in December 1839 :—it was adherent to the cavity posterior to the vent of the fish.

Order *Pycnogonida.*

45. *Nymphon femoratum,* Leach, Zool. Misc. vol. i. p. 45. tab. 19. f. 2.

Dredged from eight to ten fathoms at Donaghadee in May 1843 by Dr. J. L. Drummond.

Leach only is quoted by M. Edwards, vol. iii. p. 534, for this species, who notes it however as inhabiting " La Manche."

46. *Phoxichilidium globosum,* Goodsir, Edin. New Phil. Journ. vol. xxxii. p. 136. pl. 3. f. 1, January 1842,

I obtained among zoophytes thrown ashore at Portmarnock, on the Dublin coast, in Aug. 1840. This species was only known to its describer as taken in Orkney by Mr. Edw. Forbes and Mr. John Goodsir.

The following brief summary of the *Crustacea* contained in the preceding list may be desirable.

There are introduced for the first time to the fauna of the British seas, the *generic* forms of *Opis, Anonyx**, and allied genus, *Lestrigonus, Ægina ?, Tanais, Trebius, Lernæopoda*; and the *specific* forms of *Eurynome scutellata, Cirolana hirtipes, Caligus minutus, C. curtus, C. diaphanus, C. pectoralis, C. Nordmanni* and *C. sturionis.* A number of undetermined species, and some of them certainly non-descript, are still in my possession.

Of *generic* forms added to the Irish fauna (but all included in the British) there are *Amphithöe, Cerapus, Themisto (Macromysis), Cynthia, Jæra, Eurydice, Cymodocea, Munna, Cetochilus, Canthocarpus* and *Phoxichilidium.*

The mere *species* added to the Irish fauna possess various interest, as indicated in noticing them respectively. My specimens of several forms were the first obtained, having been procured some years before those from which the original descriptions were drawn up by M. Kroyer and Mr. H. Goodsir.

Some of the species here brought forward have hitherto been noticed only as found in the Mediterranean†, others in the seas of Denmark, and several as met with only at a single locality on the English or Scottish coast; all information of this kind possesses much interest as exhibiting insofar the geographical range of the species.

Without the kind aid of Mr. Adam White and Dr. Baird of the British Museum, who assisted me in the determination of the species from comparison with those contained in the national collection and otherwise, I should not have ventured to publish this communication.

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* See *ante.*

† One (*Cirolana hirtipes*) as from the Cape of Good Hope! but further information is desiderated respecting it.

Without the confirmation of stronger eyes and better knowledge than I myself possess, I could not feel satisfied in recording any species of *Crustacea* that can only be determined by microscopic power. All those preceding the *Entomostraca* in arrangement came under the notice of the former gentleman, and all of these (using the term in its widest sense) under that of the latter. To both, my warmest thanks are due, as they also are to John Edward Gray, Esq., for his extreme kindness and liberality on this, as on all former occasions, when I required to make use of the great national collection of zoology placed under his most zealous and effective superintendence.

XXIII.—*Descriptions of some species of* Brachiopoda. By Mr. T. Davidson, Mem. Geol. Soc. France, and Mr. J. Morris, F.G.S.

[With two Plates.]

The following notice includes descriptions of a few new or little-known Brachiopoda, some of which are interesting from their localities and associations, more especially the *Leptænæ,* of which three species have lately been found in the liassic group of England and one in that of France. For the description of the French species we are indebted to M. Bouchard, whose collection contains good specimens of this shell.

Leptæna liasiana, Bouchard. Pl. XVIII. fig. 2 *a—d.*

Shell rounded, inequivalved, equilateral, smooth; dorsal valve gibbose posteriorly, becoming flatter anteriorly, with a slight longitudinal groove ending in a notch on the front margin of the shell. Beak small, slightly incurved, truncated at the apex by a minute circular foramen, similar to that which occurs in many other *Leptænæ,* for instance, *L. alternata* of Indiana, North America; this truncation may also be observed in some species of *Orthis* from Russia. Area double, interrupted on the dorsal valve by a large and slightly convex deltidium, which arises at the apical opening and gradually enlarges towards the base, and occupies one-third of the width of the area. The deltidium is slightly notched, the notch being partly closed by the large median tooth of the ventral valve, the exterior face of which is grooved by four furrows which afforded a passage for the muscular fibres of attachment arranged in four bundles. The ventral valve is deeply concave, following the contour of the dorsal valve, so that little space remained between them for the body of the animal. Cardinal margin about half the width of the shell. Length 6, width 5 millimetres.

Locality: the lias of Pic de Saint Loup, near Montpellier, Herault.

ized in drawing from the above considerations the following conclusions:—

1st. That the uniform dotted arrangement on the walls of the vasa spiroidea simply results from the pressure of the surrounding parts alone.

2nd. That the supposition of the starch particles being analogous in function to the blood-globules is unfounded; and that the black line seen upon the starch particles cannot, and does not, perform any such office as has been supposed.

3rd. That the imagined secondary formations from the blood-corpuscles are really misinterpreted appearances; not vital but physical*.

9 St. John's Square, Dec. 1842.

EXPLANATION OF PLATE IV.

Fig. 1. Vessel from *Typha latifolia*, showing the dots extending nearly across the face of the tube from the pressure of one large similar tube or cell.

Fig. 2. Origin of beaded appearance, *i. e.* the fibres cut across and projecting. (*T. latifolia.*)

Fig. 3. Same as 1 and 2. On the tube *b* two smaller tubes have pressed, whilst opposite *a* only one has existed. (*T. latifolia.*)

Fig. 4. Tube from *Arundo Phragmites*, showing the results of the pressure of two of different sizes on one tube.

Fig. 5. From *Aspidium Filix mas*, a transverse section showing the dots opposite the convexity of the projecting cells.

Fig. 6. Projecting teeth, leaving spaces between them corresponding to the dot. (*T. latifolia.*)

Fig. 7. Section of tube of the same, showing the dot to be formed of membrane only.

Fig. 8. Ring of an annular duct of *Arundo Phragmites*, which has been pressed upon by three surrounding cells or vessels, thickened at the bendings.

Fig. 9. Tube from *Pteris Aquilina*, showing the impression of one tube upon another, and the dots on that portion corresponding to its breadth.

Fig. 10. From *Typha*, showing adhering portions of surrounding cells or vessels.

Fig. 11. Section of stem of *Typha*: cells similar to those at *a*, pressing upon and producing large dots; those similar in size to *b*, *b* produce smaller ones, as at *c*. The interruptions to the regular arrangement, as at *e*, are caused by the abrupt terminations of the surrounding tubes, leaving spaces.

Fig. 12. Tube from *Typha*, showing the loose fibres bent and thickened at the joints.

Fig. 13. Diagram showing the spiral fibre pressed upon by surrounding vessels or cells, first stage.

Fig. 14. Second stage. *a*, *a*, *a*, *a*, bendings of fibres corresponding to intercellular or intervascular spaces; *b*, pressing cells.

Fig. 15. Muscular fibre, showing what might be interpreted into an appearance of interlacing fibres when not quite in focus. (Bostock, Barry in Trans. of Royal Soc.)

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* I believe the tissues to be all reproduced by the transudation of the liquor sanguinis through the walls of the capillaries; and that no blood-globules can ever leave the capillaries unless their walls be ruptured, which must always be the case in hæmorrhage by "simple exudation."

Fig. 16. Interlacing double spirals, leaving spaces which afterwards become dots. (After Barry.)
Fig. 17. Same in a more advanced stage. (Id. *loc. cit.*)
Fig. 18. Dotted duct thus perfected. (Barry, *loc. cit.*)
Fig. 19. Fibres from *T. latifolia* bent and thickened, in an advanced stage.
Fig. 20. Dotted vessel from *Arundo Donax*, the black lines formed by adherent portions of vegetable matter which filled up the spaces separating the surrounding cells and vessels.
Fig. 21. Dotted duct from *Sambucus nigra.*
Fig. 22. Transverse section of dotted tube in *Aspidium Filix mas*, showing the rows of dots corresponding to projecting portions of surrounding cells.

XVII.—*The Crustacea of Ireland.* By Wm. Thompson, Esq., Vice-Pres. Nat. Hist. Society of Belfast.

[Continued from vol. x. p. 287.]

Order Decapoda.

2nd Section. Decapoda Anomoura.

Lithodes Maia, Leach, Mal. pl. 34.
L. arctica, *Edw. Crust.* t. ii. p. 186; *Desm. Consid. Crust.* p. 160. pl. 25.
Horrid Crab, *Penn. Brit. Zool.* vol. iv. p. 6. pl. 8. f. 14, edition 1812.

Templeton says of this species—“ Found on the coast of the county Wexford: a specimen thence is in Trinity College Museum [Dublin]. It is called by the people *craban.*”

I have not seen any Irish example of this crab, but am indebted to Dr. Wylie of Ballantrae, Ayrshire, for a very fine specimen which was taken in a herring-net there in the summer of 1838, in water from twenty to thirty fathoms in depth. It was brought to Dr. Wylie by the fishermen as a species which they had never before met with.

Pagurus Bernhardus, Edw. Crust. t. ii. p. 215; Penn. vol. iv. p. 30. pl. 18; Desm. p. 178. pl. 30. f. 2.
P. streblonyx, *Leach, Mal.* pl. 26. f. 1—4.

Hermit-crabs of this species are very common in univalve shells around the coast of Ireland. Leach mentions their “ first occupying the shells of the common periwinkle or trochus” (Art. Crustaceology in Edin. Encyclop.); but some examples in my collection are much smaller than those contained in the species just named. They are in the *Littorina retusa, Turritella terebra,* and *Nasa macula*—univalves from this size up to that of the largest *Buccina* are commonly inhabited by the *P. Bernhardus*: a specimen of this crab from the coast of Down, in my collection, is 6½ inches in length. Samouelle speaks of the shell occupied by the *Pagurus* being “ destined to preserve the body from injury, and to guard them from the attacks of fishes, which would otherwise devour them.” Entom. Compend. p. 92. In this latter respect the shells are of little service, as I have remarked *Paguri* very commonly in the stomachs of various species of fishes, but especially in the omnivorous and voracious cod: all the moderate-sized and large hermit-crabs which have thus occurred to me must have been dragged from their shells, which, in no instance that I recollect, were found in the stomach of the fish along with them.

One of these crabs inhabiting a *Buccinum undatum* was brought up alive in the dredge from a depth of fifty fathoms off the Mull of Galloway. See 'Annals,' vol. x. p. 21.

Pagurus Prideaux, Leach, Mal. pl. 26. f. 5 and 6.
P. Prideauxii, *Edw. Crust.* t. ii. p. 216.

Has been taken by Mr. Hyndman and myself when dredging in Strangford and Belfast loughs, and in the open sea off Dundrum, county Down, and in every instance occupying the shell invested by the *Adamsia maculata* (*Actinia maculata,* Adams). Leach states that "Mr. Prideaux has observed it in a vast variety of habitations, even in the tubes of the *Dentalia* and in the shell of *Scaphander lignarius* [*Bulla lignaria*]." To me this appears singular, for among the very numerous specimens of *Paguri* in my collection from all quarters of the Irish coast, and found inhabiting shells of various species, not a *P. Prideauxii* occurs, except in connection with the *Actinia* already named. This is a remarkable fact. The connection of the two species is surely more than accidental. It may be further stated, that in the localities whence *P. Prideauxii* was obtained, *P. Bernhardus* is very common; and in the loughs mentioned, a few individuals of two or three other species of *Paguri* have been procured.

See p, 2

"*Pagurus erinaceus.*"

In the collection of Mr. J. V. Thompson is an Irish specimen of a Pagurus considered as undescribed, and so named by him.

Porcellana platycheles, Edw. Crust. t. ii. p. 255; Desm. p. 195. pl. 34. f. 1.
Great-clawed crab, *Penn. Brit. Zool.* vol. iv. p. 9. pl. 6. f. 2.

This littoral crab seems to be a local species, but plentiful where it does occur; Templeton notices it as found on the "Whitehouse shore by Mr. James Grimshaw, Jun." On the beach near Carrickfergus, a few miles distant from that locality, it was procured in abundance in June 1835, by the late Mrs. Patterson of Belfast, who subsequently obtained it near Cultra, on the county Down shore of the bay. Mr. R. Ball states that this species is very abundant on the shores of the county Dublin, and especially at Portmarnock: he remarks that in once turning over a large stone here in cold wintry weather, the under side was entirely covered with these crabs, "packed as close to each other as tiles on a roof!" In June 1838, I found the *P. platycheles* in numbers beneath large stones at the island of Lambay, off the Dublin coast—on the 1st of this month, the females abounded in ova. At Lahinch, county Clare, this species occurred to Mr. E. Forbes and myself in July 1840, between tidemarks, and beneath the same stones *P. longicornis* was met with alive.

Porcellana longicornis, Edw. Crust. t. ii. p. 257.
Long-horned crab, *Penn. Brit. Zool.* vol. iv. p. 5. pl. 1. f. 3.

This species chiefly inhabits deep water on our coasts, but in some localities lives on shores exposed at the ebb of every tide. It has been dredged up in abundance in the loughs of Strangford and Belfast, and in the open sea off the north-east coast of Ireland in

1834, and subsequently by Mr. Hyndman and myself. It is generally found in connection with large shell-fish brought up from deep water, such as oysters, horse-mussels (*Modiolus vulgaris*) or clams (*Pecten maximus*), and shelters itself under any extraneous matter or natural roughness (as between the testaceous layers of an old oyster) sufficient for the purpose. Mr. R. Ball's collection contains specimens from Youghal* and Dublin Bay:—on the shore of the island of Lambay I have taken it alive, as well as at Lahinch on the western coast.

Specimens of this crab have been sent me from the coast of Wigtonshire, Scotland, by Captain Fayrer, R.N.

Order Decapoda.

3rd Section. Decapoda Macroura.

Galathea strigosa, Edw. Crust. t. ii. p. 273; Desm. p. 189. pl. 33. f. 1.
G. spinigera, *Leach, Mal.* pl. 28 B.
Plaited lobster, *Penn. Brit. Zool.* vol. iv. p. 24. pl. 15.

Would appear to be distributed around the coast, but everywhere in very limited numbers. Templeton notes it as found at "Bangor, co. Down, November 1819, and in the stomach of a cod-fish." It is enumerated in Mr. J. V. Thompson's catalogue, his specimen being probably from Cork. Two were captured by Mr. Hyndman and myself, when dredging in Strangford lough in October 1834; and others have subsequently been added to my cabinet from the rocky coast of Antrim, as from Island Magee; Glenarm; the vicinity of the Giant's Causeway; one or two only from each place: at the last-named, a couple of individuals, which were brought to me alive in the month of June, were captured under stones at low water. The species may probably resort to the shallows to deposit their ova, which in these examples were ready for exclusion. The Ordnance collection contains the *G. strigosa* from Belfast bay. Mr. R. Ball has a specimen from Dublin bay:—its length of body is $4\frac{5}{8}$ inches; arm from basal insertion to end of claw $4\frac{6}{8}$ inches.

In March 1835, a *G. strigosa* from Portpatrick was kindly sent to me by Captain Fayrer, R.N.; and on the beach at Newhaven, near Edinburgh, I once picked up a very large one, which had probably been thrown out of some of the fishing-boats. At Ventnor, in the Isle of Wight, one which had been captured in a crab-pot was brought to me: it was $5\frac{1}{2}$ inches in length from the points of the claws to the extremity of the tail-plates.

Both the young and adult specimens in my cabinet are highly attractive, from still retaining their fine red and bright blue markings.

Galathea rugosa, Leach, Mal. pl. 29; Edw. Crust. t. ii. p. 274.
Astacus Bamffius. Long-clawed lobster, *Penn. Brit. Zool.* vol. iv. p. 23. pl. 24.

Is noticed as Irish by Mr. J. V. Thompson. The specimens which I have seen were mostly found in the stomach of the cod-fish. Dr.

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* Mr. J. V. Thompson mentions a "species of *Porcellana*" being in "abundance in the deep water of the harbour of Cove." Ent. Mag. vol. iii. p. 275. The Irish species contained in his collection (Royal College of Surgeons, Dublin) is the *P. longicornis*—it is named *P. Linneana*.

J. L. Drummond thus obtained two of them from fish brought to Belfast market. In a cod taken near Carrickfergus, I once found a fine male *G. rugosa*; its length of body from base of eyes to extremity of tail-plates, 3 inches; its arm from base to point of claw, 5½ inches. Another individual was found in the mouth of a haddock captured at Killough, county Down. Mr. R. Ball in one instance procured three specimens from the stomach of a cod taken at Youghal. Dr. Leach remarks "that the *G. rugosa* appears to be a very rare species in Britain," and so may it likewise be considered on the Irish coast. It is probably one of those species not to be found in numbers anywhere.

A *G. rugosa* has been kindly sent to me from Portpatrick by Captain Fayrer, R.N. Several small individuals were dredged alive in water from 110 to 140 fathoms in depth off the Mull of Galloway. See 'Annals,' vol. x. p. 23. None of them exceeded 1½ inch in length of body.

Among the genera of Crustacea which possess a luminous property when living, *Galathea* is included, and the species particularized is the *G. amplectens*, Fabricius (McCulloch's West. Isles, Scotland, vol. ii. p. 192), observed by Sir Joseph Banks on the coast of Brazil. It is perhaps not worth remarking, that in a dead specimen of *G. rugosa* I observed the same property. On the evening of the second day after it had been kept in a warm room, the entire soft portion of its under surface was highly luminous.

Galathea squamifera, Leach, Mal. pl. 28 A; Edw. Crust. t. ii. p. 275.

Is marked Irish in Mr. J. V. Thompson's catalogue. It is our most common species of *Galathea*, and is found on all sides of the island. It is not uncommonly dredged up by us in the loughs of Strangford and Belfast, the specimens being generally of a small size. In the Ordnance collection are examples from Portrush, near the Giant's Causeway. At Lahinch, county Clare, two of the *G. squamifera* were procured by us under stones between tide-marks. Specimens from Youghal and the western coast are in Mr. R. Ball's collection.

Captain Fayrer, R.N., has favoured me with this species from Portpatrick.

Galathea nexa, Embleton, Proceedings Berwickshire Club, p. 71. pl. 1.

"I have found it in the stomachs of cod-fish brought from the coasts of Down and Antrim to Belfast market; and in Dr. Drummond's collection are specimens which were similarly procured. A comparison of one of these with an original specimen in Dr. Johnston's possession, proved (what from its agreement with the description and figure I had previously little doubt of) the identity of the species."—W. T. in 'Annals,' vol. v. p. 255.

Palinurus vulgaris, Leach, Mal. pl. 30; Edw. Crust. t. ii. p. 292; Desm. p. 184. pl. 32.

Astacus homarus, *Penn. Brit. Zool.* vol. iv. p. 22. pl. 12.

The spiny lobster is found sparingly on the north, but commonly on the south coast. Smith in his 'History of Kerry' remarks that one side of Dingle bay "is noted for having very large cray-fish;" and in his 'History of Cork' states that "we have of them in great plenty from one to six or eight pounds weight on the south coast of Ireland." Rutty, in his 'Natural History of the County of Dublin,' says of the *Palinurus,* "this, though common on their tables at Cork, and a more delicate food than the lobster, is rare in Dublin, though sometimes brought to our market from Munster, and sometimes from England." Mr. R. Ball informs me that it is still occasionally brought to Dublin, and that it is at the present time rather commonly taken at Youghal along with lobsters, and of the size noticed by Leach—from 18 to 20 inches in length of body. It is considered coarse food at the last-named place. A specimen obtained many years ago at Magilligan, county Londonderry, is in Mr. Hyndman's collection: one or two have subsequently been procured there by the Ordnance Survey, as well as on the coast of Donegal. A specimen captured in a crab-pot at Carrickfergus is preserved in the Belfast museum.

Callianassa subterranea, Leach, Mal. pl. 32; Edw. Crust. t. ii. p. 309; Desm. p. 205. pl. 36. f. 2.
Cancer Astacus subterraneus, *Mont. Linn. Trans.* vol. ix. p. 88. pl. 3. f. 1 & 2.

"March 25, 1839.—On examining the contents of the stomach of several individuals of the *Platessa Pola,* which were taken early this morning off Newcastle (county Down), two of the larger arms of this species, so peculiar in form and still retaining their beautiful pink colour, were detected*."—W. T. in 'Annals,' vol. v. p. 256.

Astacus fluviatilis, Edw. Crust. t. ii. p. 330.
Craw-fish, *Penn. Brit. Zool.* vol. iv. p. 24. pl. 16. f. 1.

Inhabits the rivers in many parts of Ireland, but is generally stated to have been introduced to its recorded haunts from other quarters. Thus, Rutty in his 'Natural History of Dublin' remarks, "It has been sometimes found in this county, chiefly in gentlemen's ponds, and lately in the river near Finglass; but said to have been brought thither from Munster." In an essay on the parish of Templepatrick, written in 1824, it was stated, that "the lady of the late Arthur Upton introduced a stranger into our river called craw-fish. It was put into the brook at Templepatrick; it descended the Six-mile water, where it found a situation perfectly suited to its nature, deep water and banks of loam, which they excavate as lodgings for themselves and their young; they have increased to a very great multitude." This locality is about ten miles distant from Belfast. The date of the introduction of the cray-fish unfortunately is not given, nor are we informed whence they were brought. About thirty years before the essay was written, as I am informed by a venerable friend, cray-fish were plentiful some miles farther up the river than where they are said to have been introduced. They were obtained in drains connected with the river near Doagh, and were not sought for as a marketable commodity, but served up at the table of the Antrim Hunt, to gratify the special palate of one of the knightly members of that body. About Florence Court, county Fermanagh, the cray-fish is abundant, but to this locality also, Lord Enniskillen tells me that the species is said to have been introduced many years ago from Queens-county:—of the correctness of this, as in former cases, there is no proof. About two years ago, however, I had 'ocular demonstration' of the introduction of the cray-fish into a pond at Lismoyne, the seat of a relative near Belfast. Early in September 1840, supplies taken in a small river in the county of Kildare were from time to time forwarded by the coach from Dublin to Belfast, and arrived in tolerable condition on the second day after capture; sometimes all were alive and apparently in good health; at others, perhaps one-fourth would be sickly or dead. At this period none contained ova, but a supply sent forward in the middle of November had them well-developed. It may be worth mentioning that these cray-fish were captured by a man wading up to his middle in the river, and thrusting his hands into their burrows in the banks—the water must be low at the time to render the holes visible. When caught they are generally put in a bag containing a little hay, and by being kept cool will live a few days out of the water. They are likewise taken in numbers by baiting with chickens' entrails a common creel or basket, which is let down by a rope to the bottom of the river in the evening, and next morning is pulled up so quickly, that the contained cray-fish having no time for escape are all captured.

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* A species named "*Thalassina Montagui*" appears as Irish in Mr. J. V. Thompson's catalogue. It may be presumed to have been considered by that gentleman a new species, although "n.d." is not prefixed to it as in other cases of non-descripts. Only one species of this genus,—the *T. scorpioides,* a native of Chili,—is noticed in M. Edwards's Hist. des Crustaces (t. ii. p. 316).

Templeton says of the *Ast. fluviatilis* that it "inhabits several of our lakes and rivers; near Antrim, in the Six-mile water; in great abundance in a lake near Tullahan, county Monaghan." About Ballibay and Glaslough in this county it is now said to be met with. About Kill lake, lough Sheehan, &c. in the neighbouring county of Cavan it is found*. Mr. R. Ball states that the cray-fish is taken in the Royal Canal, about twelve miles from Dublin.

Mr. Patrick Doran, a well-known and intelligent collector of objects of natural history, gives me the following account of cray-fish as observed by him in Killymoon river, near Cookstown, county Tyrone, when the water was very low. They ascend from the deeper to the shallow parts to spawn. It is the office of the males to cater for the young. He has seen them catch minute fish and *Gammari*, bring them to the female and young, and break the fish up in pieces for the latter, so as to muddy the water in the process. On being disturbed, both sexes gather the young under their tails "as a hen gathereth her chickens under her wings," but a singular difference prevails between the sexes with regard to their manner of protecting their progeny. The male on being lifted out of the water retains the young under his tail; but the female on being captured, wiser than her lord, slaps them from her into their native element with great force, thus producing an effect which is likened by my informant to "a shower of rain upon the surface." He has repeatedly witnessed this different procedure of the two sexes.

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* In Mr. Hyndman's cabinet there is a specimen of a cray-fish considerably smaller and more delicately proportioned than the *A. fluviatilis*, and apparently a different species. It is believed by him to be Irish, but of this he is not certain. A very intelligent lady who saw the specimens above alluded to from Kildare—and which were the ordinary *A. fluviatilis*—remarked on their being much larger than those she had been accustomed to see in county Cavan. On Mr. Hyndman's *Astacus* being shown, it was stated that of the quantities which she had seen served up at table, none were ever larger. They were taken in one of the tributaries to lough Sheehan, about 1½ mile above the lake, and eight miles from the town of Cavan. I have as yet been unable to obtain cray-fish from this locality. Silence would perhaps have been more judicious, than the introduction of matter of this kind without any *positive* evidence.

Mr. R. Ball supplies me with the following note:—"Some years ago I kept a cray-fish for a considerable time in a shallow glass vessel, about 20 inches in diameter, and containing about two inches depth of water. This animal gradually acquired great viciousness, and would eagerly attack the fingers of any one who chose to put them within his range, pursuing the intruding digits round the boundaries of his demesne. After he had been thus a year in my possession, I was one day surprised to see a second cray-fish in the vessel, but on taking the intruder in my hand (believing it to have been placed in the vessel by a waggish relative) it proved to be the exuviæ of my old friend so perfect as to present his exact counterpart. Instead of his usual boldness, he now exhibited the most remarkable timidity, which continued for three or four days. He was at first quite soft and appeared considerably larger than usual, but gradually grew firmer, and on the fifth day felt to the touch as hard as usual, and advanced with open pincers to the attack of my finger, though evidently not without some little doubtfulness of his powers. Before the end of the week he was himself again, came on more boldly than ever and with greater effect, as his weapons were much sharper. He lived nearly two years with me, and during the whole time received no food excepting one or two worms. The water was never changed, but some was occasionally added merely to supply the loss by evaporation. I had found by previous experiments that cray-fish placed in pans with much water died, while those which were merely covered, or in such a manner that they could raise a portion of their bodies above the surface, lived as long as they were taken care of."

Homarus vulgaris, Edw. Crust. t. ii. p. 334.
Astacus marinus, *Desm.* p. 211. pl. 41. f. 1.
A. gammarus, *Penn. Brit. Zool.* vol. iv. p. 14. pl. 11.

Lobsters are in plenty around the rocky shores of Ireland. From the iron-bound north-eastern coast, great quantities of them are now sent by the regularly plying steamers to Glasgow. About Dublin, Mr. R. Ball informs me that the flounder (*Platessa flesus*) is used as bait for the lobster; and at Youghal, that the best plaice (*Platessa vulgaris*), which would bring a good price at market, are cut up for the same purpose.

The lightest looking and most tasteful lobster-pot that I have seen is that used at the South Islands of Arran (off Galway bay). It is of the form and about the size of a tenor-drum. The frame-work consists simply of a small hoop at each end fastened to three almost equally light but tough pieces of wood, so as to present the drum form; over all a net is stretched, having an opening in the centre of each end. The bait used is fish.

Nephrops Norvegicus, Leach, Mal. pl. 36; Edw. Crust. t. ii. p. 336; Desm. p. 213. pl. 37. f. 1.
Norway Lobster, *Penn. Brit. Zool.* p. 23. pl. 13. f. 1.

Templeton says of this—"a rare species, but sometimes found in Belfast lough." I have heard of its being taken near Portaferry about the entrance to Strangford lough, and that it has been procured in numbers off Dundrum on the Down coast, but specimens have not come under my observation from ~~any of~~ these localities. It is brought in great quantities to Dublin as an article of food, and is chiefly used by the poorer people. Mr. R. Ball informs me that the species is very numerous in Dublin bay, near the Pigeon House, and that hence the town is supplied: he has taken the *Nephrops* along with echini and star-fish from the stomachs of cod bought in Dublin.

Specimens have been obligingly sent to me from the island of Holyhead (Wales) by Captain Fayrer, R.N.

Crangon vulgaris, Leach, Mal. pl. 37 B; Edw. Crust. t. ii. p. 341; Desm. p. 218. pl. 38. f. 1.
Astacus crangon, *Penn. Brit. Zool.* p. 26. pl. 16. f. 2.

The shrimp, being an article of food, is noticed in several of our old county histories. It is common on the sandy shores and adjacent saline marshes from north to south of Ireland. The western shore of Belfast bay was many years ago of a hard sandy nature, so as to admit of being ridden over by persons on horseback. At that period, as I am informed, shrimps abounded there, and were regularly sought for as objects of sale. At present this same part of the shore is soft and oozy, and the shrimps so very limited in number and small in size that they are never looked after. Although this species chiefly frequents sandy shores, I have occasionally seen it brought up in the dredge from deep water and at a considerable distance from land, in the loughs of Strangford and Belfast. Mr. R. Ball mentions that shrimps, though taken in large quantities at Youghal, are held in little esteem, but that the prawn (*Palemon serratus*), caught abundantly at spring-tides, is much thought of—this latter is called "shrimp" there; the former the "gray shrimp:" this term is also used in Smith's 'History of the County of Cork,' written nearly a century since.

"*Pontophilus spinosus*," Leach, Mal. pl. 37.
Crangon cataphractus, *Edw. Crust.* t. ii. p. 343.

In Mr. J. V. Thompson's collection there is a specimen bearing the former name, and marked as Irish. It is much to be regretted that the notice of the Irish Crustacea in this collection (now in the College of Surgeons, Dublin,) is limited to a single letter, the initial

"I" simply indicating them, as "F" does the foreign species. The native specimens were, I believe, chiefly derived from the harbour of Cove, whence those were brought upon which that naturalist founded his highly important and celebrated 'Researches into the Metamorphoses of the Crustacea.'

"*Processa (vel Nika) canaliculata.*"

Irish examples of this species are in Mr. J. V. Thompson's collection.

Athanas nitescens, Leach, Mal. pl. 44; Edw. Crust. t. ii. p. 366.

A single specimen was found under a stone between tide-marks at Lahinch, county Clare, by Mr. E. Forbes and myself in July 1840, as noticed in the seventh volume of this Journal.

Hippolyta varians, Leach, Mal. pl. 38. f. 6–16; Edw. Crust. t. ii. p. 371.

Is an inhabitant of deep water around the coast. Mr. J. V. Thompson's collection contains Irish specimens. This species has been dredged in Belfast and Strangford loughs by Mr. Hyndman and myself, and was similarly procured by our party in July 1840, in Clew and Roundstone bays on the western coast. In Dalkey Sound, Dublin bay, an *H. varians*? was taken by us in the dredge.

"*Hippolyte Cranchii*"

Is marked in Mr. J. V. Thompson's collection as Irish.

Pandalus annulicornis, Leach, Mal. pl. 40; Edw. Crust. t. ii. p. 384; Desm. p. 220. pl. 38. f. 2.

Is in Mr. J. V. Thompson's collection. The species has been taken commonly by Mr. Hyndman and myself in the rock-pools accessible at low-water throughout the Down coast, and has been dredged by us in deep water on the north-east coast, and in Killery bay, Connemara. Mr. R. Ball has specimens from the shores about Dublin.

Palæmon serratus, Leach, Mal. pl. 43. f. 1; Edw. Crust. t. ii. p. 389; Desm. p. 234. pl. 40. f. 1.

Astacus serratus, *Penn. Brit. Zool.* vol. iv. p. 25. pl. 17. f. 1.

The prawn, an article of human consumption, is noticed in some of our old county histories, as Harris's 'Down,' Smith's 'Cork and Waterford,' Rutty's 'Dublin.' The last author says, apparently* with reference to this species, that "it was formerly frequent on our coast, but the frost in 1740 destroyed many of them"! vol. i. p. 379. Templeton speaks of it as "once common in Belfast lough; now rare." Some years ago I obtained from this locality a very large specimen, which was taken in a lobster-pot at the entrance of the bay. Here the species has more lately been obtained by the collectors attached to the Ordnance Survey, who likewise procured it at Portrush near the Giant's Causeway. Mr. R. Ball states that at Youghal, prawns are taken only during the first quarter of flood-tide, and then plentifully : at the South Islands of Arran he captured numbers of them in the summer of 1835, and out of about fifty, found three with *Bopyri* attached.—See 'Annals,' vol. v. p. 256.

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* He refers to Rondeletius for the species meant, a work which I have not at present to consult.

Palæmon squilla, Leach, Mal. pl. 43. f. 11–13 ; Edw. Crust. t. ii. p. 390.

Templeton notices this species as " common on the shore of Belfast lough." It is of frequent occurrence in rock-pools throughout the range of the Down coast, and is likewise occasionally taken in deep water with the dredge.

I have met with it commonly in rock-pools about Ballantrae, Ayrshire.

Palæmon varians, Leach, Mal. pl. 43. f. 14–16 ; Edw. Crust. t. ii. p. 391.

A few examples have been procured in Belfast and Strangford loughs by Dr. Drummond and myself. Leach remarks that the *Astacus squilla* of Pennant may be his *P. varians.*

" *Palæmon Leachii* "

Is the name attached by Mr. J. V. Thompson to an Irish specimen in his collection.

Pasiphaë Sivado, Risso, Hist. Nat. l'Eur. Mérid. t. v. p. 81, ed. 1826; Edw. Crust. t. ii. p. 426.

" In the British Museum there is a specimen so named, and labelled 'Ireland.' From the donor, the Rev. James Bulwer, I learned that it was taken by him in the vicinity of Dublin."—W. T. in 'Annals,' vol. v. p. 256.

[To be continued.]

XVIII.—*Remarks on three species of Marine Zoophytes.*

By Arthur Hill Hassall, Esq.

Antennularia arborescens. Polypidom arborescent, arising from a tangled mass of tubular root-like filaments by a single trunk, which subsequently divides and subdivides into numerous branches; branchlets verticillate, long ; cells tubular, not separated from each other by one or more small cup-like processes, as are those of *Antennularia antennina.*

In the 'Annals and Magazine of Natural History,' vol. vi. p. 168, pl. 5, I have described and figured an *Antennularia* which I conceived to be distinct from the common *A. antennina,* and which I then conjectured to be identical with the *Antennularia ramosa* of Lamarck.

The opinion originally entertained of its specific distinctness has recently been confirmed by some observations of Mr. J. Macgillivray, recorded in the ninth vol. of the 'Annals,' by whom many specimens have been found at Aberdeen, agreeing in all respects with my description ; but I have since seen reason to discard the notion of its identity with Lamarck's *Antennularia ramosa,* whose description of that species, which is probably nothing more than the common branched condition, not worthy of being considered as a variety, of *Antennularia antennina,* contains no reference to the two chief specific characters of my species, viz. the circumstance of the polypidom arising by a single trunk, and the absence of the small tubular processes placed between the proper polype-bearing cells present in *A. antennina.* I propose, therefore, to designate my species *Antennularia arborescens,* a term which expresses one of its peculiarities.

Alcyonidium glomeratum. Polypidom massive, of no very defined outline; colour a deep uniform red, the shade of which approaches to vermilion.

I have lately been informed by Dr. Johnston that the *Alcyonidium rubrum* of Müller is very different from the deep red *Alcyonidium* referred to by me in the seventh vol. of the 'Annals of Natural History,' and which I supposed to be identical with that zoophyte. Although not the *Alcyonidium rubrum* of Müller, I still regard it as specifically distinct, notwithstanding the observations of Mr. Macgillivray to the contrary; or at all events, if it does not claim to be regarded as a distinct species, it can only be looked upon as a *permanent variety,* which is the next thing to a distinct species.

Mr. Macgillivray appears inclined to consider it as a mere accidental variety, and observes that I appear "to regard it as distinct, apparently on the sole ground of not having been able to detect any gradations of colour between it and the common kind, as might be expected were it a mere variety;" and says further, "that to be consistent, I ought to separate as so many distinct species those *Sertulariæ* which are occasionally found of a bright pink colour, and make two species out of *Laomedea geniculata,* of which Dr. Johnston has often observed coloured and colourless specimens growing upon the same stone."

The cases do not appear to me, however, to be at all analogous: the polypidoms of the Hydroid zoophytes are corneous and extravascular, while those of the *Alcyonidia* are coriaceous, fleshy, and continuous with the polypi themselves; the colour in *Alcyonidium glomeratum* is, therefore, probably a secretion from glands placed in it, which cannot be the case with the *Sertulariæ.* Moreover the colouring matter is uniformly diffused over the surface of the polypidom of *A. glomeratum*; while in the Hydroid zoophytes it usually extends only over a portion of the polypidoms, parts of them retaining their normal appearance.

Believing that in doubtful cases the truth is more likely to be elicited by separating species than by uniting them, I have ventured to assign a distinct specific name to what some would be disposed perhaps to regard as a mere variety; an opinion, however, in which at present I by no means concur.

Farcimia spathulosa. Internodes three or four times as large as those of *Farcimia salicornia*; cells spathulate, that is to say, rounded above and excavated below, for the reception of the head of the cell beneath; apertures semilunar, situated in the upper third of each cell.

XXXVIII

NOTE ON *ARGULUS FOLIACEUS*, JURINE. BY WM. THOMPSON, VICE-PRES. NAT. HIST. SOC. OF BELFAST.

Belfast, Oct. 29, 1838.—In our market today I had the pleasure of detecting one of these very interesting and handsome parasites attached to the dorsal fin of a *Salmo Trutta*, about a foot in length. The *Argulus* is 3⅓ lines long, is a female, and in addition to the ova exhibits at the base of the tail the dark green spots (" noirs," Desm. Consid. Gen. Crust., p. 332), which are considered to mark this sex. Although the fish to which it was attached had been for some hours out of the water, the *Argulus* held so firmly by its two disks that I had some difficulty in detaching it without injury. For about ten minutes it was wrapped in a piece of dry paper, and then placed in a vessel of water in which salt had been dissolved until it was to the taste like strong sea-water*. This was no sooner done, than my pretty captive, after drawing her last pair of feet together several times†, thus calling to mind the common house fly, struck out her oars, and thereby was rapidly impelled through the fluid.

The figures of Desmarest (tab. 50.) and Yarrell (Brit. Fish., vol. ii. p. 399.) are very characteristic of this species, but the great beauty exhibited in the specimen before me is at the same time not shown, perhaps in consequence of the upper side of the female not being represented—this consists in its being closely spotted with very dark green along the central part of the body for two-thirds posteriorly commencing a little above the ovary in the form of a head, and extending to the posterior portion; the rest of the upper side of the body being of a very pale yellowish green hue and semi-transparent as described, the part thus spotted is well defined, and is strikingly of the form of a coleopterous insect, which the *Argulus* in another point of view resembles, when the two sides of the greenishly transparent " boucliers" are thrown a little apart, as we see the elytra of the insect. I was further reminded of the resemblance when attempting to remove it, as in holding firmly by the suckers, the body was drawn in, and the " boucliers" elevated quite above it. Its motion through the water seems equally rapid whether it be on the upper or under side, or swimming retrally—it frequently moved along the surface with its back downwards, and was wholly immersed except the suckers, which were thrown either on a line with the water or quite above it, and thus would the animal occasionally remain quiescent for a short period.

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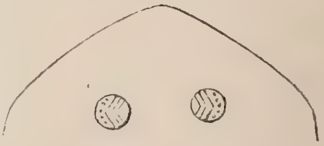
* This was done in consequence of my having been told that the fish was taken in the sea; the stomach, however, contained the remains of freshwater insects (according to my friend A. H. Haliday, Esq., to whose inspection they were submitted), which possibly might have been washed into the sea and there obtained, but this is by no means probable.

† I observed this repeatedly done afterwards—they seem to be rubbed against the caudal plates.

The constant motion of these organs (visible to the naked eye) in addition to the rapid play of the feet, impart much life to the appearance of the *Argulus*, and present not the same aspect for two continuous seconds of time, whether the body be at rest or otherwise. They—i. e. the marginal row of minute suckers, which appear as a dark line round the disk in figures of the species—are frequently drawn together to the centre of the disk, exhibiting a dark point not larger than the eye.

The eye itself, under the lens or microscope, exhibits constant motion, and even to our unassisted vision its red colour—that of the lady bird, *Coccinella septempunctata*—is apparent; when magnified it looks black where the lines and dots are, red elsewhere.



After having been about four or five hours in the salt water, and displaying its wonted activity to the last, the specimen was lost during my absence from the room. I had intended to observe how long it—a freshwater species—would live in salt water, but though foiled in this, have thought these notes, made with the living animal before me, might perhaps be worth the room they occupy, more especially as the *Argulus* seems to be very little known as a British species. From what has been stated it would seem to be very tenacious of life. The individual here treated of is the second Irish one I have seen; the other was, when swimming freely in Lough Neagh, taken by Mr. Hyndman in the autumn a few years since. Like the present specimen, it displayed a mass of large ova.

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XXXIX

Adam White Esq
with W Thompson's
best respects

stroy the surface of *Casuarina* and you render the stem smooth—destroy the surface of *Equisetum* and you only increase the coarseness and strength of the sulcation. I may also add (in accordance with this view) that age or size has no connexion with this lineation of the surface, as is suggested by M. Brongniart in the last few lines of the quotation from his work at the head of this subject, for I find some of the largest stems perfectly smooth and the smallest occasionally striated. The sheaths are rather coarsely striated, and terminate in thin, flattened leaves, the midrib of which is scarcely discernible. In the weeping or downward curved branches the leaves are completely reflexed so as to point upwards, and according to the position of the stem, are either reflexed, expanded, or lying straight up against the stem. The stems vary from 3 to 7 lines in diameter.

Common in the white soft shale of Mulubimba, N. S. Wales.

Phyllotheca Hookeri (M'Coy). Pl. XI. figs. 4, 5, 6, 7.

Sp. Char. Stem simple, coarsely sulcated and ridged longitudinally; sheaths very large, loose, subinfundibuliform, each sheath extending from one articulation to the next, so as to conceal the stem; leaves about twice the length of the sheaths, thick, narrow, and with a strong, prominent midrib.

This species is easily known from the two former by its great loose sac-like sheath, completely concealing the stem (see Pl. XI. figs. 4 & 5), its long, thick, strongly ribbed leaves (see Pl. XI. fig. 6), and by its stem when stripped of its sheath being coarsely and regularly sulcated, precisely as in the *Calamites Cistii* (see Pl. XI. fig. 7). Although abundant, I have never seen a trace of a branch. Some of the flattened stems attain a width of two inches.

Common in the sandstone of Clark's Hill, in the siliceous schists of Arowa, and in the shales at Mulubimba, N. S. Wales.

[To be continued.]

XVI.—*Note on the* Teredo norvegica (T. navalis, *Turton, not Linn.*), Xylophaga dorsalis, Limnoria terebrans *and* Chelura terebrans, *combined in destroying the submerged wood-work at the harbour of Ardrossan on the coast of Ayrshire.* By WILLIAM THOMPSON, Esq., Pres. Nat. Hist. and Phil. Society of Belfast*.

IN the Edinburgh 'Philosophical Journal' for January 1835, I published a memoir entitled, "On the *Teredo navalis* and *Lim-*

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* Read at the Meeting of the British Association at Oxford in June last.

noria terebrans as at present existing on certain parts of the coasts of the British Islands." The chief localities commented on, were Portpatrick, on the coast of Scotland, and Donaghadee on that of Ireland, in both of which places, floating timber as well as the wood-work of the piers was destroyed to a most serious extent, the *Limnoria* being by far the more destructive of the two species. The *Teredo* was in that communication further mentioned as having attacked the wood-work of a sluice at Youghal, on the coast of Cork, and as having committed great havoc at the harbour of Dunmore, on the coast of Waterford—at the former locality the *Limnoria* was also met with. This species alone—without the addition of the *Teredo*—was noticed as destroying in 1834 the jetty at Kingstown harbour, in Dublin bay.

I am not aware of the two destructive agents—Molluscan and Crustacean—being commented on as conjoined in their evil labours, previous to the publication of that paper; nor do I remember having seen any notice of three species of these borers—and certainly not of four—having been at work in any one locality[*].

Early in the month of May last, Major Martin of Ardrossan, in Ayrshire—a gentleman well-known as a lover of natural history, and as a successful collector of objects of zoological and botanical interest—sent me a piece of wood bored by the *Xylophaga dorsalis*, and labelled as from the dock-gates, Ardrossan. Not having before heard of this animal attacking the *fixed* timber of our harbours—it has been found in drift wood or portions of vessels cast ashore—I made immediate inquiry respecting it, suggesting at the same time that the *Teredo* should be looked for, and also, that the outside of the timber should be examined for very minute borings :—if such were observed, I requested to be informed whether they were of more than one size. Specimens of wood excavated by the *Limnoria* and *Chelura* were forwarded by post for my friend's guidance.

I shall here give his replies to queries on the subject generally.

The piece of wood sent was a portion of the dock-gates. The *Xylophaga* has been known to be consuming them since the docks were opened in March 1844. It has been known for a very considerable time along this coast, where there is no fresh water[†]. It attacks timber of all kinds: for instance, the wooden pier (the supporters of which are nearly destroyed) and other timbers that are under water about the quays, and have been placed there without any preservative coating. It appears to prefer black birch to any other timber, but does not like African or American oak. The only successful preventive made use of for preserving the dock-gates against the *Teredo, Xylophaga,* &c. is Muntz's patent yellow metal sheathing, which is put on to the height of thirteen feet; it lasts for ten or twelve years. The timber that is perforated is always covered by water. The depth of water in the docks is from sixteen to eighteen feet. Red pine is the favourite timber of the Crustaceans.

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[*] Philippi, writing in 1839, mentions the *Teredo navalis*, Linn., being in the same timber with the *Chelura* at Trieste.

[†] It is perhaps twelve years since specimens from that locality were sent to me, but I imagined that they had been found in drift timber.

On inspecting the pier, Major Martin could not observe that the *Xylophaga* had committed any destruction, but saw that the *Teredo* had been at work in some places. He cut off a piece of the wood from the outside and sent it to me. It contained in addition to the furrows of the *Teredo,* living specimens of both *Limnoria* and *Chelura.* This pier has been about eight years erected. I was also sent a portion of one of the dock-gates, consisting of a piece of pine two inches in thickness, and within the space of a few square inches containing the excavations of the whole four species. It may give some idea of the frequency of the Xylophaga's perforations in the different pieces of wood, to mention, that on an average at least one-half is occupied by its burrows. The *Xylophaga* has never, like the *Teredo,* been observed by my correspondent to form a testaceous tube or lining to its cell.

Xylophaga dorsalis,

Turton seems to have been the first to notice, and under the name of *Teredo dorsalis* it appears in his 'Conchological Dictionary,' p. 185, and in his 'British Bivalves,' p. 16; but in the 'Addenda,' p. 253, to the latter work, he constituted the genus *Xylophaga* for its reception. His first specimens are noticed as "from a piece of wood in Torbay." He subsequently obtained "magnificent specimens of the *Teredo navalis* and this shell in their most perfect state" from "fragments of a wreck known to have been buried in the ocean for nearly half a century, near Berry Head, at the entrance of Torbay." This author remarks, that "like the *Teredo,* it inhabits the interior of the wood which has been some time under salt water, penetrating to the depth of from half an inch to an inch, forming for itself an oval receptacle or cavity, and having a very small and single external orifice," p. 254. He observes, that "its habitation in wood naturally separates it from the *Pholas.*" But in this remark he forgot that at p. 11 of the same work he had noticed *Pholas striatus* as "taken from an old yard-arm on Brixham pier, and which had been drifted in from the bay." Very little would seem to be known of the *Xylophaga.* Deshayes, in the second edition of

Lamarck, t. vi. p. 47 (1835), quotes only Turton and Sowerby's 'Genera of Shells' (no. 29. tab. 101):—he calls it *Pholas xylophaga.* Broderip too in the 'Penny Cyclopædia' brings it under the genus *Pholas,* figures it in the wood, and also represents the valves separately and joined. It is there noticed as "found in cylindrical cavities eaten ? in wood," but certainly there is no doubt, as there indicated, of its being the real excavator of the burrows it inhabits. Philippi does not include this species in either of his volumes on the Mollusca of the Two Sicilies; but it appears in the very lately published 'Index Molluscorum Scandinaviæ' of Lovén:—this author refers only to Turton and Deshayes for it: he notices it simply as found in Norway.

This species differs from *Teredo navalis,* Turt., by boring *against* the grain of the wood (all of which is pine), in a diagonal manner.

Within a few square inches of this wood, the perforations of both these species may be seen: they labour harmoniously together in the work of destruction, the one destroying the timber by boring it in a longitudinal direction, the other by its operations being directed against the grain. They both work *within* the outer surface of the wood, but this again is destroyed from *without* inwards by the *Limnoria* and *Chelura.* Many of the chambers of the *Xylophaga* before me are 1½ inch in length, thus exceeding by one half the longest noticed by Turton. The shells of my largest specimens are 5½ lines in length: the two valves joined at the hinge occupy a space of 5½ lines in diameter.

Specimens obtained in rotten timber in 1828 at Ringsend, Dublin bay, by W. H. Harvey, Esq., have been given to me by that gentleman, and when in Dublin in March last I saw in Mr. Warren's collection a piece of wood (sound) filled with the perforations and valves of this species, of which latter I was kindly permitted to take specimens. The wood was found by Mr. Warren on the Dublin coast, where I have little doubt that the species is committing some injury, although such may not yet have been noticed.

Chelura terebrans, Philippi[*].

All that has been published on this species has already appeared in the 'Annals;' Philippi's paper, in which it was first described, having been translated and republished in the fourth volume; and Professor Allman's, introducing it as an inhabitant of the British seas, having a place in the Number for the month of June last*. I have therefore only to offer a few remarks bearing on the species as found at Ardrossan.

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[*] Professor Allman points out certain trivial differences between the specimens described by Philippi and those from Dublin bay. The latter are similar to those from Ardrossan, except in size.

Limnoria and *Chelura* are *both* present in a piece of wood from Kingstown pier, Dublin bay, given me in 1842 by Mr. R. Ball, as well as in the wood from Ardrossan.

Both species bore in the direction of the grain of the wood, and their cells are quite alike in character: I perceive no mark of distinction when the animals are of equal breadth. The first piece of wood pierced by the *Chelura* which I had an opportunity of examining—that from Kingstown—contained the excavations of large adult individuals. The borings of these were so considerably larger than those of the *Limnoria* which had come under my notice, as to lead me to believe that the difference in the size of the aperture would at once distinguish the working of either species. The piece of wood from Ardrossan, however, not only proved that this was no criterion, but—from the circumstance of the *Cheluræ* being small, and less in breadth than the *Limnoriæ*—that theirs were rather the smaller cells.

Both the Crustaceans, like the *Teredo* and *Xylophaga*, labour harmoniously together in the work of destruction, and are mingled in the wood as if they were all of one species.

They can be readily distinguished from each other either when alive or dead, the *Chelura* being of a reddish, the *Limnoria* of a pale grayish yellow hue resembling that of light-coloured pine or fir. As they retain their colours after death, we may even years afterwards distinguish the two species in the excavations which they had formed in timber subjected to their ravages. From this circumstance, added to that of their burrows being formed in the closest contiguity, and many of the creatures dying in them after the timber has been removed from the sea, we may in our museums display whole catacombs of them as closely packed as ever were mummies in the best-tenanted tombs of Egypt. And the Crustaceans have this advantage, that

> "Each in his narrow cell for ever laid"

remains perfect as in life, without the aid of any preservative.

On first learning from my friend Professor Allman that the two species were found associated together, I re-examined—for the purpose of ascertaining whether the *Chelura* might not have been overlooked—all the wood that I had preserved on account of *Limnoria* borings, but in none of it was the former species to be detected. This wood was all pine, and from Portpatrick, Donaghadee, and Belfast bay: from the first-named places obtained in 1834, and from the last in the present year. In the more marine parts of this bay I was not surprised to find that the *Limnoria* existed. I had however hoped, that where the admixture of fresh with sea-water (if such take place) should be very great even at full-tide, and where at low-water the former only prevails, wood-work would be free from its attacks, but such I regret to state is not the case. For the purpose of testing this, I requested my friend Edmund Getty, Esq.—who is officially connected with the harbour—to have all the beacons or "perches" marking the channel of the river (which they do for about two miles at the upper part of the estuary) examined, and if they proved to be injured, to favour me with specimens of the damaged wood. All this he kindly had done in the month of May last, when the beacons proved to have been all attacked, and those most under the influence of the fresh-water to have suffered equally with those nearest to the open sea. The ship-carpenter who cut the damaged portions off that were sent me, stated to my friend that some old mooring-buoys so high up as the Old Long Bridge were found on removal injured in the same manner. The *Limnoria* was the only borer of any kind found in the beacons alluded to.

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* The species (regarding Philippi's as not distinct) was however known to and named by Dr. Leach. British specimens (but from what locality is unknown) belonging to his collection are in the British Museum, and are labelled *Nemertes nesæoides*, Leach. Under this name they appear in the very carefully and elaborately compiled "List of the specimens of Crustacea in the collection of the British Museum" published this year, the work of Mr. Adam White. The name ~~is~~ was, I believe, left unpublished by Dr Leach; at any rate, both *Nemertes* and *Chelura* are preoccupied as generic terms.

It must be mentioned, that judging from the superior size of the *Chelura* borings to those of the *Limnoria* in Dublin bay, I had from that circumstance noted down the perforations in pieces of oak and black birch washed ashore at Belfast as the work of the *Limnoria*; but perceiving, on examination of the wood from Ardrossan, that the borings of the two species may not only be of equal size, but that those of the latter species may be the larger, I was taught that the presence of the Excavator himself must be essential to settle the point, and that circumstantial evidence is insufficient. The wood in question had been so long tossed about in the sea that the animals were all washed out :—both pieces had also been bored by the *Teredo norvegica* (*T. navalis,* Turt.).

In reference to the length of time that the *Chelura* will live after being removed from its native element, the following note was made. A few specimens taken from the sea on Monday morning and received by me in the afternoon of that day were alive on Thursday morning, or seventy-two hours afterwards, when, leaving home for England, I took the piece of wood containing them with me, and on examining it next day found them dead; they had probably lived out of their native element about ninety hours. A number had lived in the same wood for about sixty-five hours; they were alive on Wednesday night at 12 o'clock and dead on the next morning at 7 o'clock. The wood in which they were, was a small piece about six inches in length and an inch in thickness; it was not wetted since being received on Monday, and was kept in a warm room (about 65° Fahrenheit) all the time. The apparently simple fact of the species thus living so long out of water has a very important bearing, for it suggests to us that this species could, like the *Limnoria,* commit its devastations in wood left dry by the ebbing of every tide. Dr. Coldstream informs us that the latter species "often effects a lodgment in piles very near high-water mark, where it is left dry by the receding tide during the greater part of every twenty-four hours*," and I have very little doubt that the *Chelura* could play a similar part. I have not heard that the extent of the damage done at Ardrossan by the destructive animals noticed in this communication has yet been estimated, but on lately writing to my obliging friend and correspondent there, requesting him to procure if possible perfect specimens of the *Xylophaga* for dissection—the testaceous portions only had before been sent—he replied that the opportunity for so doing was now past, "as the damaged portions of the dock-gates had been replaced by sound timber."

This may not be an inappropriate place to add the following note on *Teredo navalis.*

A copy of Lovén's 'Index Molluscorum Scandinaviæ' lately published, having been kindly sent me by the author, I was induced, in consequence of the *Teredo navalis,* Linn., being there considered distinct from that so called by other authors, to re-examine the shells bearing that name in my cabinet from different parts of the British coasts. The result is that they are all the *T. norvegica,* Spglr. (*T. navalis,* Turt. Brit. Biv.) as distinguished from *T. navalis,* Linn. The localities from which they were obtained are Portpatrick (Scotland) and Donaghadee (co. Down), in both of which the animal was found alive—Miltown Malbay (co. Clare), in drift timber—Belfast, in the bottom of a vessel arrived from the tropics in 1846: *Teredo* ~~*malleolus,* Turt~~., was much more numerous in this vessel—Belfast, also in blue clay (subfossil): the valves of these last are very large, being equal in size to those described in my former paper as obtained at Portpatrick. I allude here to specimens procured since that communication was published, a portion of the bough of an oak-tree a few inches in diameter, found during the excavation of a deep sewer, having

bipalmulata
Delle Chiaje

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* Edin. Phil. Journ. 1834.

been kindly sent me by Edmund Getty, Esq. The wood itself is perfectly sound, but the tree is split and rived in the direction of the grain in some places almost into shreds by the boring powers of the *Teredo*.

XVII.—*On the Pliocene Deposits of the Valley of the Thames at Ilford.* By Richard Payne Cotton, M.D.

The tertiary deposits bordering on the Thames appear to be composed of materials of the same general characters, variously arranged, but formed under the same physical circumstances. The formation may be well seen at Brentford, Ilford, Grays and Erith, where beds of gravel will be found resting upon sands of various colours, sandy loam and clays, abounding in remains of mammalia and freshwater shells*. The following description refers to two cuttings in brick-fields at Ilford, one on the north of the London road, belonging to Mr. Curtis, another on the south of the same road, and the west of the Barking lane, the property of Mr. Kilverton. In the former we observe—

	feet.
Vegetable soil with gravel	2
Coarse gravel	2
Coarse yellow sand, stratified	4
Brick earth of various shades of brown, regularly stratified with nodules of carbonate of lime (race) and a few bones	5
Light brown brick earth, interstratified with layers of sand, and full of bones	3
Thin veins of fine sand of shades of yellow and brown irregularly waved	2
Coarse gravel and sand.	—
	18

In the latter the arrangement is as follows:—

	feet.
Vegetable soil with gravel	2
Coarse gravel and sand stratified	3
Brick earth of shades of brown, stratified	6
Brick earth of a light brown with wavy veins of sand, calcareous nodules (race) and bones	2
Layers of brown and yellow sand, waved, containing in its upper part an abundance of bones	4
Fine yellow and white sand, with freshwater shells	2
Coarse gravel with water.	—
	19

The stratification of the clays is generally regular and horizontal, the layers however frequently thin out or expand, but the veins of sand are irregular and waved, so that the surface of the cutting, from the changing thickness of the strata, varies extremely

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* A list of the shells occurring in these mammaliferous deposits has been given by Mr. J. Morris in the 'Magazine of Natural History,' vol. ii. p. 544. —Ed.

XL

CATALOGUE

DES CRUSTACÉS

OBSERVÉS JUSQU'A CE JOUR A L'ÉTAT VIVANT
DANS LE BOULONNAIS,

Par M. Bouchard-Chantereaux.

BOULOGNE.

IMPRIMERIE DE LE ROY-MABILLE, GRANDE RUE.
1833.

CATALOGUE

DES CRUSTACÉS

OBSERVÉS JUSQU'A CE JOUR A L'ÉTAT VIVANT DANS LE BOULONNAIS,

Par M. Bouchard-Chantereaux. (1)

SOUS-CLASSE PREMIERE.

MALACOSTRACÉES, *Malacostraca,* Desmarets.

LÉGION PREMIÈRE.

PODOPHTALMES, *Podophtalma.* Desmarets.

ORDRE PREMIER.

DÉCAPODES, *Decapoda.* Latreille, Desm.

Jusqu'à ce que ces Crustacés soient parvenus à leur état parfait, ils changent de têt une ou plusieurs fois l'an, cela dépend de leur âge. Ce renouvellement de têt, qu'on est convenu de nommer *Mue*, a lieu à toutes les époques de l'année; il commence chez les femelles aussitôt après l'éclosion de leurs œufs; elles restent alors pendant trois ou quatre jours sans prendre de nourriture et dans un état complet de torpeur; ce temps écoulé, la Carapace se dessoude au-dessous de ses bords latéraux, là, où existe une ligne courbe qui part de chaque côté de la bouche et se termine à la partie postérieure du Thorax: cette Carapace se soulève peu-à-peu, mais reste fixée vers la tête qui fait l'office de charnière; après quelques efforts l'animal se dégage de son ancienne enveloppe et en sort avec la nouvelle qui est environ le quart plus grande, mais dont les couleurs sont absolument les mêmes. Après cette opération, ces Crustacés sont entièrement mous, et restent cachés sous les pierres jusqu'à ce que la partie extérieure de leurs membres ait acquis assez de solidité pour pouvoir supporter leur corps.

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(1) Le désir de rendre plus utiles les instans que j'ai employés à la recherche des mollusques du Boulonnais, joint à celui d'augmenter la Collection des Crustacés du Muséum de Boulogne, des espèces appartenant au pays, sont les motifs qui m'ont déterminé à réunir en Catalogue celles que j'ai recueillies et observées. Loin de prétendre que ce travail soit complet, je suis persuadé qu'il reste encore beaucoup à observer, surtout dans les petites espèces, qui demandent des recherches particulières et faites avec la plus grande attention ; mais tout incomplet qu'il est, j'ai pensé qu'il serait de quelque utilité, en ce qu'il donnerait des renseignemens positifs sur la distribution géographique de ces animaux.

Arrivés au terme de leur accroissement, cette mue n'a plus lieu; nous voyons alors la Carapace des petites espèces de nos rivages se couvrir de *Balanes, Flustres*, etc., tandis que celles des espèces habitant les régions profondes, sont souvent couvertes d'*Alcyons* et d'*Huîtres* très-fortes (*Ostrea Hippopus*).

C'est aussi à l'époque de la mue, et lorsque les femelles sont encore molles, que les mâles qui n'ont point encore mué, les recherchent afin d'effectuer l'accouplement qui a lieu ventre à ventre. La femelle est renversée, ses pattes pliées sur son thorax, l'abdomen étendu; le mâle la couvre de son corps, et la retient avec sa troisième paire de pattes; ils restent ainsi plusieurs jours sans mouvement. Mais si pendant la durée de cet acte ils sont inquiétés, le mâle emporte sa femelle avec une rapidité étonnante ; souvent lorsqu'il ne peut éviter le danger il la défend, et meurt plutôt que de l'abandonner.

Ces Crustacés sont ovipares. Leurs œufs sont globuleux, de couleurs diverses, et généralement très-nombreux, surtout dans les grandes espèces; la femelle les porte jusqu'à leur éclosion sous son abdomen, auquel ils sont fixés au moyen de fausses pattes et d'une matière gluante qui les agglomère entre eux. Tous se propagent avant d'être parvenus à leur dernier degré d'accroissement, et n'ont point de saison fixe (le printemps) pour cette opération, comme plusieurs auteurs l'ont avancé; car à toutes les époques de l'année, soit dans les espèces de nos rivages, soit dans celles qui habitent les régions profondes et qui sont rapportées par les filets de nos pêcheurs, j'ai constamment observé des femelles garnies de leurs œufs, d'autres à l'état mou, et enfin des petits de tous les âges. Ce qui, je pense, a donné lieu à cette erreur, c'est que pendant la belle saison, c'est-à-dire en mai, juin, juillet et août, les Crustacés sont très-abondans sur les rivages, et par conséquent très-faciles à observer ; tandis que plus tard ils regagnent la pleine mer, qu'il en reste fort peu sur les côtes, et que ces derniers craignant les rigueurs de l'hiver se mettent à l'abri sous les pierres ou sous les *Eucus* situés au niveau de la basse-mer.

FAMILLE PREMIÈRE.

BRACHYURES, *Brachyuri*, Latr., Leach., Desm.

Genre CORYSTE, *Corystes*, Latr., Leach., Lamarck, Desm.

N° 1. CORYSTE DENTÉ, *Corystes Dentata.*

Desmarets, Considérations générales sur la classe des Crustacés, pag 87. pl. 3, fig. 2.

C. Cassivelaunus, Leach.

Malacostraca Podophtalma, Britanniæ fasc. 6., tab. 1.

Lamarck, Anim. sans vertèbres, t. v., p. 234, n° 1.

Latreille, Règne animal de Cuvier, t. iv. p. 53.

Habite les régions profondes. Les mâles ont les pieds antérieurs très-grands (3 pouces 6 lignes), égaux, trois fois aussi longs que leur carapace ; chez les femelles ces pieds sont deux tiers plus courts, et comprimés.

Genre PORTUMNE, *Portumnus.* Leach., Desm.

N° 2. PORTUMNE VARIÉ, *Portumnus variegatus.*

Desm., loc., cit., p. 90, pl. 4, fig. 2.

Leach., loc., cit., tab. 4.

Habite nos plages sablonneuses, aux laisses de basse mer. Longueur de la Carapace 14 lignes, largeur 11 lignes.

Genre CARCIN, *Carcinus.* Leach. Desm.
Cancer. Latr., Lamk., Bosc.

N° 3. CARCIN MENADE, *Carcinus mænas.*

Desm., loc., cit., p. 91.

Cancer Mænas. Lamk., t. v., p. 270, n° 2.

——— Bosc, t. 1, p. 203.

——— Latr., loc., cit., t. 4, p. 35.

Habite toutes nos côtes, très-commun, sous les pierres. Quoique sa chair ne soit pas très-délicate, on en expédie des voitures pour les villes de l'intérieur, dans les mois de juin et juillet; il sert d'appât pour la pêche lorsqu'il est à l'état mou. La femelle porte des œufs au nombre de 184000 à 185000, de couleur jaune ou aurore, qui deviennent bruns quelque temps avant l'éclosion; dans leur jeune âge ces Crustacés sont très-variés dans leur coloration, ils ont la carapace parsemée de tâches blanches, rouges ou noires, des formes les plus bizarres. Leur nom vulgaire à Boulogne est *Dada*. Longueur 2 pouces, largeur 2 pouces 10 lignes.

J'ai plusieurs fois observé ce Crustacé dans la Liane et dans les fossés d'eau saumâtre des prairies de Capécure.

Genre PORTUNE, *Portunus*. Latr., Bosc., Leach., Desm., Lamk.

N 4. PORTUNE ÉTRILLE, *Portunus puber*.

Desm., loc., cit., p. 93, pl. 5, fig. 1.
Leach., loc., cit., tab. 6.
Bosc., t. 1, p. 230, pl. 5, fig. 2.
Lamk., t. 5, p. 258, no 1.
Latr., loc., cit., t. IV, p. 35.

Habite les laisses de basse mer de nos plages sablonneuses, au moindre bruit s'enfonce dans le sable: la femelle porte des œufs de couleur rouge. Longueur 21 lignes, largeur 2 pouces 2 lignes.

N° 5. PORTUNE MARBRÉ, *Portunus marmoreus*.

Desm, loc., cit., p. 95.
Leach., loc., cit., tab. 8.

Habite les mêmes lieux que l'espèce précédente. Longueur 15 lignes, largeur 19 lignes.

Genre Crabe, *Cancer*. Latr., Leach., Lamk., Bosc., Desm.

N° 6. Crabe tourteau, *Cancer pagurus*.

Desm., loc., cit., p. 103, pl. 8, fig. 1
Lamk., t. v, p. 270, n° 1.
Bosc., t. 1, p. 201.
Latr., loc., cit., p. 37.

Habite toutes nos côtes, sous les rochers, très-commun: la femelle porte des œufs de couleur rougeâtre. Longueur des plus grands individus 7 pouces, largeur 5 pouces 2 lignes.

Genre Pirimèle, *Pirimela*. Leach., Desm.

N° 7. Pirimèle denticulé, *Pirimela denticulata*.

Desm., loc., cit., p. 106, pl. 9, fig. 1.
Leach., loc., cit., tab. 3.

Habite sous les pierres, assez rare. Longueur 5 lignes, largeur 6 lignes.

Genre Pinnothère, *Pinnotheres*. Latr., Bosc. Leach., Lamk., Desm.

N°8. Pinnothère pois, *Pinnotheres pisum*.

Desm., loc., cit., p. 118, pl. 11, fig. 3.
Leach., loc., cit., tab. 14, fig. 1, 2, 3, 9, 10, 11.
Lamk., t. 5, p. 231, no 1.
Bosc., t. 1, p. 294.

Habite dans les Moules et les Modioles, commun; ses œufs sont de couleur rouge très-vif. Longueur 4 lignes, largeur 4 lignes et demie.

N° 9. **Pinnothère de Cranch**, *Pinnotheres Cranchii.*

Desm., loc., cit., p. 118.
Leach., loc., cit., tab. 14, fig. 4 et 5.

Habite aussi dans les Moules et les Modioles; moins commun.

Genre **Eriphie**. *Eriphia.* Latr., Desm., *Cancer,* Lamk.

N° 10. **Eriphie, front épineux**, *Eriphia spinifrons.*

Desm. loc. cit. p. 126. pl. 14. f. 1.
Latr. loc. cit. p. 41.
Cancer spinifrons. Lamk., t. 5., p. 271, n° 3.

Habite toutes nos côtes; très-commun sous les rochers de la tour Croy. Ses œufs sont brun foncé; longueur 10 lignes, largeur un pouce.

Genre **Dromie**, *Dromia.* Latr., Lamk., Leach., Desmarest.

N° 11. **Dromie de Rumphius**, *Dromia Rumphii.*

Desm. loc. cit. p. 137.
Lamk, t. 5., p. 264, n°
Bosc, t. 1., p. 219.
Latr., loc. cit. p. 69.

Habite les régions profondes. Excepté les doigts qui chez les vieux individus sont d'une belle couleur rose, tout le reste du corps est couvert d'un duvet brun très-serré; les œufs sont rouge foncé. Longueur 2 pouces 10 lignes, largeur 3 pouces 4 lignes. Assez commun; son nom vulgaire à Boulogne est *Tourlourou.*

Genre EURYNOME, *Eurynome.* Leach., Latr., Desm.

N° 12. EURYNOME RUGUEUSE, *Eurynome aspera.*

Desm. loc. cit. p. 143. pl. 20. f. 2.
Leach. loc. cit. tab. 17.

Habite les régions profondes; assez rare; longueur 19 lignes, largeur 12 lignes.

Genre MAIA, *Maïa.* Lamk., Latr., Leach., Bosc, Desm.

N° 13. MAÏA SQUINADO, *Maia squinado.*

Desm. loc. cit. p. 145. pl. 21.
Leach. loc. cit. tab. 18.
Lamk, t. 5. p. 241, n° 3.
Bosc, t. 1. p. 275.
Latr. loc. cit. p. 59.

Habite les régions profondes, commune. Longueur 5 pouces 4 lignes, largeur 4 pouces.

Genre PISA, *Pisa.* Leach., Desm., Maïa, Latr. Bosc.

N° 14. PISA DE GIBBS, *Pisa Gibbsii.*

Desm., loc., cit., p. 146.
Leach., loc, cit., tab. 19.

Habite les régions profondes, assez rare; le mâle a les pieds antérieurs deux fois aussi longs que ceux de la femelle; longueur de la carapace 2 pouces 2 lignes, largeur 1 pouce 4 lignes.

Genre HYADE, *Hyas*. Leach., Desm.
Maïa, Bosc., Latr.

N° 15. HYADE ARAIGNÉE, *Hyas araneus*.

Desm., loc., cit., p. 148.
Leach., loc., cit., tab. 21, A.
Maïa bufo, Bosc., t. 1, p. 273.

Habite les régions profondes, très-commun, ainsi que l'espèce suivante. Longueur 2 pouces 10 lignes, largeur deux pouces.

N° 16. HYADE CONTRACTÉE, *Hyas coarctata*.

Desm., loc., cit., p. 148.
Leach., loc., cit., tab. 21. B.

Habite les mêmes lieux que l'espèce précédente. Longueur 14 lignes, largeur 9 lignes.

Genre INACHUS, *Inachus*. Leach., Latr., Desm.
Maïa, Bosc., Lamk.

N° 17. INACHUS SCORPION, *Inachus Scorpio*.

Desm., loc., cit., p. 152, pl. 24, fig. 1.
Inachus, Dorsettensis. Leach., loc., cit., tab. 22.
Maïa Scorpio. Bosc., t. 1, p. 271.

Habite les régions profondes, très-commun. Longueur un pouce, largeur dix lignes.

Genre MACROPODIE, *Macropodia*. Leach., Latr., Desm.
Maïa, Bosc
Stenorinchus, Lamk.

N° 18. MACROPODIE TENUIROSTRE, *Macropodia Tenuirostris*.

Desm., loc., cit. p. 154.
Leach., loc., cit., tab. 23, fig. 1 à 5.

Habite les régions profondes, très-commun. Longueur de la carapace neuf lignes, largeur quatre lignes et demie. Les pattes de la seconde paire ont deux pouces six lignes de long.

FAMILLE SECONDE.

MACROURES, *Macrouri.* Latr., Leach., Desm.

Genre PAGURE, *Pagurus.* Latr., Lamk., Bosc., Leach., Desm.

N° 19. PAGURE BERNARD, *Pagurus Bernhardus.*

Desm., loc., cit., p. 178, pl. 30, fig. 2.
Leach., loc., cit., tab. 26, fig. 1 à 4.
Lamk., t. 5, p. 220, n° 1.
Bosc., t. 1, p. 325.
Latr., loc., cit., p. 77.

Habite dans des coquilles univalves, vides, afin de soustraire la partie postérieure de son corps, qui est constamment molle, aux attaques de ses ennemis. Ce Crustacé change de coquille à mesure qu'avec l'âge son volume augmente, ce qui a toujours lieu après la mue. Cette habitation influe sur la conformation de ses membres, ceux du côté droit sont toujours plus forts et plus longs que ceux du côté gauche, ceux-ci étant continuellement en contact avec la columelle de la coquille. Ses œufs sont gris et deviennent violets quelque temps avant l'éclosion.

Les Pagures habitent les lieux situés au-dessous du niveau de la basse mer.

Genre GALATHÉE, *Galathea.* Leach., Latr., Lamk., Desm.

N° 20. GALATHÉE STRIÉE, *Galathea strigosa.*

Desm., loc., cit., p. 189, pl. 33, fig. 1.

Leach., loc., cit., tab. 28. B.
Latr., loc., cit., p. 83.
Bosc., t. 2, p. 48.

Habite toutes nos côtes, sous les pierres situées au niveau de basse mer, assez commune; ses œufs sont d'une belle couleur pourpre.

Genre Porcellane, *Porcellana*. Lamk., Bosc., Latr., Leach., Desm.

N° 21. Porcellane a pinces larges, *Porcellana platycheles*.

Desm., loc., cit., p. 195, pl. 34, fig 1.
Lamk., t. v, p. 230, n° 2.
Latr., loc., cit., p. 84.
Bosc., t. 1, p. 300.

Habite les endroits vaseux sous les rochers, où il est constamment cramponné; ses œufs sont rouges ou jaunes. Longueur 5 lignes, largeur 4 lignes.

Genre Pisidie, *Pisidia*. Leach., Desm. *Porcellana*, Lamk, Bosc.

N° 22. Pisidie longicorne, *Pisidia longicornis*.

Desm., loc., cit., p. 198.
Porcellana longicornis. Lamk., t. 5, p. 230, n° 2.
——————— Bosc., t. 1, p. 300.

Habite toutes nos côtes, sous les pierres; très-commun dans les masses madréporiques rapportées par le chalut de nos pêcheurs; ses œufs sont d'un rouge très-vif. Longueur 4 lignes, largeur 3 lignes et demie.

Genre GÉBIE, *Gebia*. Leach., Desm.

N° 23. GÉBIE DELTURE, *Gebia Deltura.*

Desm., loc., cit., p. 204.
Leach., loc., cit., tab. 31, fig. 1 à 9.

Habite les régions profondes, rare. Longueur 2 pouces.

Genre AXIE, *Axius*. Leach., Desm.
Thalassina, Latr.

N° 24. AXIE STIRHYNQUE, *Axius Stirhynchus.*

Desm., loc., cit., p. 207, pl. 36, fig 1.
Leach., loc., cit., tab. 33.
Latr., loc., cit., p. 88.

Habite les mêmes lieux que l'espèce précédente; rare.

Genre ÉCREVISSE, *Astacus*, Gronovius, Latr., Bosc, Leach, Lamk., Desm.

N° 25. ÉCREVISSE HOMARD, *Astacus marinus.*

Desm., loc. cit. p. 211, pl. 41, f. 1.
Lamk., t. 5, p. 216, n° 1.
Bosc., t. 2, p. 40.
Latr., loc. cit. 89.

Habite les régions profondes, mais se trouve quelquefois à la côte. Je l'ai observé plusieurs fois aux Roches-Bernard. Longueur, 18 à 20 pouces; ses œufs sont bruns.

Genre CRANGON, *Crangon*. Latr., Lamk., Bosc., Leach, Desm.

N° 26. CRANGON COMMUN, *Crangon vulgaris.*

Desm., loc. cit. p. 218, pl. 38, f. 1.
Leach, loc. cit. tab 37. B.

Lamk., t. V, p. 201, n° 2.
Bosc, t. 2, p. 80.
Latr., loc. cit. p. 94.

Habite toutes nos plages sablonneuses, très-commun en toutes saisons; la femelle porte environ 12,000 œufs qui sont gris, et deviennent bruns quelque temps avant l'éclosion. A Boulogne on le nomme vulgairement *Sauterelle.*

Genre HIPPOLYTE, *Hippolyte.* Leach, Desm.

N° 27. HIPPOLYTE DE CRANCH, *Hippolyte Cranchii.*
Desm., loc. cit. p. 222.
Leach, loc. cit. tab.38, f. 17—21.

Habite les régions profondes, dans les masses madréporiques; commun.

Genre PALÉMON, *Palæmon.* Bosc, Latr., Lamk., Leach, Desm.

N° 28. PALEMON PORTE-SCIE. *Palæmon serratus.*
Desm., loc. cit. p. 234, pl. 40. f. 1.
Leach, loc. cit., tab. 43, f. 1—10.
Latr., loc. cit. p. 98.
Bosc, t. 2, p. 67.

Habite nos plages sablonneuses; souvent on le trouve sous les *Fucus.* Ses œufs sont gris et deviennent violets quelques jours avant l'éclosion.

N° 29. PALEMON VARIABLE, *Palœmon variabilis.*
Desm., loc. cit. p. 235.
Leach, loc. cit. tab. 43, f. 14—16.

Habite les fossés d'eau saumâtre de Capécure; ses œufs sont d'une couleur verte très-pâle; commun. Je n'ai point encore observé cette espèce sur nos côtes, quoi qu'elle soit citée par plusieurs auteurs comme marine.

Genre MYSIS, *Mysis*. Latr., Leach, Desm.

N° 30. MYSIS SPINOSULE, *Mysis spinosulus*.
Desm., loc. cit. p. 242.

Habite toutes nos plages avec les Crangons ; très commun. Ce joli petit crustacé est couleur de chair, et marqué d'un petit point noir à la partie supérieure de chaque segment. Ses valvules sont également marquées de petits points noirs, et contiennent des œufs d'une belle couleur pourpre. Longueur, 16 lignes.

LÉGION SECONDE.

EDRIOPHTALMES, *Edriophtalma*. Leach, Desm.

ORDRE TROISIÈME.

AMPHYPODES, *Amphipoda*. Latr., Desm.

Genre TALITRE, *Talitrus*. Lat., Bosc, Leach, Lamk., Desm.

N° 31. TALITRE LOCUSTRE, *Talitrus Locusta*.
Desm., loc. cit. p. 260, pl. 45, f. 2.
Lamk., t. 5, p. 183, n 1.
Bosc, t. 2, p 103.

Habite nos dunes et les sables qui ne sont recouverts qu'aux pleines mers des sizygies : ils y creusent des petits trous, dans lesquels ils se mettent à l'abri du soleil ; ils en sortent lorsqu'il pleut, et sont constamment en mouvement. Très-commun.

Genre ORCHESTIE, *Orchestia*. Leach, Desm.
Talitrus. Latr., Lamk.

N° 32. ORCHESTIE LITTORALE, *Orchestia littorea*.

Desm., loc. cit. p. 261, pl 45, f. 3.
Talitrus. gammarellus, Lamk., t. 3, p. 183, n° 2.

Habite sous les pierres. Ce crustacé, ainsi que le précédent, nage et marche sur le côté; il saute lorsqu'il est inquiété. La femelle est un tiers plus petite que le mâle, elle en diffère aussi par sa couleur qui est jaune verdâtre. Ses œufs sont de la même couleur que son corps. Après l'éclosion elle porte ses petits pendant quelque temps sous son abdomen. Très-commun.

Genre MÉLITE, *Melita*. Leach, Desm.
Gammarus. Latr., Lamk., Bosc.

N° 33. MÉLITE PALMÉE, *Melita palmata*.

Desm., loc. cit. p. 264, pl. 45, f. 7.
Gammarus palmatus. Lamk., t. 5, p. 181, n° 4.
——————— Bosc, t. 2, p. 111.

Habite sous les pierres. Couleur noirâtre, yeux blanchâtres. Ses œufs sont de couleur brune.

Genre CREVETTE, *Gammarus*. Latr., Lamk., Leach, Bosc, Desm.

N° 34. CREVETTE DES RUISSEAUX, *Gammarus pulex*.

Desm., loc. cit. p. 266, pl. 45, f. 8.
Lamk, t. 5, p. 181, n° 1.
Bosc., t. 2, p. 114.

Habite les ruisseaux, les fossés des fortifications, etc. Très-commune.

ORDRE QUATRIÈME.

LOEMODIPODES, *Læmodipoda*. Latr., Desm.

Genre Proton, *Proton*. Leach, Latr., Desm.
Leptomera. Lamk., Bosc.

N° 35. Proton pediaire, *Proton pedatum*.

Desm., loc. cit. p. 276, pl. 46, f. 3.
Leptomera pedata. Lamk., t. 5, p. 172, n° 2.
———— Bosc, t. 2, p. 127.

Habite les régions profondes, très-commun vers la base de l'*Antenularia ramosa*, et sur les éponges rapportées par le chalut de nos pêcheurs.

Genre Cyame, *Cyamus*. Lat., Lamk., Bosc, Desm.

N° 36. Cyame de la baleine, *Cyamus ceti*.

Desm., loc. cit. p, 280, pl. 46, f. 4.
Lamk., t. 5, p. 176, n° 1.
Bosc., t. 2, p. 122.

Je ne pense pas que ce crustacé soit parasite. Je l'ai constamment trouvé sous les pierres, et principalement aux endroits vaseux, où il est très-commun, ainsi qu'une autre espèce du même genre, que je pense être inédite; dans le doute, je m'abstiens de la nommer. Je la communiquerai volontiers aux naturalistes qui s'occupent de cette partie de l'histoire naturelle.

ORDRE CINQUIÈME.

ISOPODES, *Isopoda*. Latr., Desm.

Genre Idotée, *Idotea*. Latr., Lamk., Leach, Desm.

N° 37. **Idotée Tricuspide**, *Idotea tricuspidata*.

Desm., loc. cit. p. 289, pl. 46, f. 11.

Habite entre les *Balanes* qui recouvrent la base du fort de l'Heurt. Très-commune.

N° 38. **Idotée œstre**, *Idotée œstrum*.

Desm. loc. cit. p. 289.

Habite toutes nos côtes, sur les tiges des *Fucus*. Aussi très-commune.

Genre Sténosome, *Stenosoma*. Leach, Desm. *Idotea*. Latr., Lamk.

N° 39. **Stenosome linéaire**, *Stenosoma lineare*.

Desm., loc. cit, p. 290, p. 46, f. 12.

Habite toutes nos plages sablonneuses avec les Crangons. Très-commune.

Genre Sphérome, *Sphæroma*. Lat., Lamk., Leach, Desm., Bosc.

N° 40. **Sphérome a queue rude**, *Sphæroma rugicauda*.

Desm., loc. cit. p. 300.

Habite dans les fossés d'eau saumâtre de Capécure. Les

Sphéromes nagent le corps renversé, et ont leurs lames branchiales continuellement en mouvement; il sont carnivores, se nourrissent de vers ou autres substances animales, souvent même en décomposition. Très-commun.

N° 41. Sphérome denté, *Sphœroma serratum.*

Desm., loc. cit. p. 300, pl. 47, f. 3.
S. cinerea. Lamk., t. 5, p. 151, n° 1.
Bosc, t. 2, p. 151.

Habite sous les pierres situées au niveau de la marée basse. Ces crustacés sont très-variés dans leur coloration; ils ont le corps gris, parsemé de taches rouges ou noires, et quelquefois une bande blanche longitudinale sur le dos. Commun.

Genre Ligie, *Ligia.* Latr., Lamk., Leach, Bosc, Desm.

N° 42. Ligie océanique, *Ligia oceanica.*

Desm. loc. cit. p. 317, pl. 49, f. 3, 4.
Lamk., t. 5, p, 156, no 1.
Bosc, t. 2, p. 179.

Habite les fentes des quais des ports de Boulogne, Wimereux, Ambleteuse, et sur les rochers de la base des falaises. La femelle porte des œufs de couleur grise, et qui éclosent entre cinq paires de lames situées sous ses six premiers segmens; les petits, au nombre de 70 à 80, n'en sortent que lorsqu'ils ont quatre à cinq millimètres de longueur. Très-commun.

N° 43. Ligie italique, *Ligia italica.*

Desm., loc. cit. p. 318.
Lamk., t. 5, p. 156, no 2.
Bosc, t. 2, p. 180.

Habite les roches non recouvertes par l'eau de mer. Ses mouvemens sont très-brusques et très-vifs, et le rendent presque imprenable.

Genre PHILOSCIE, *Philoscia*. Latr., Lamk.,
Leach, Desm.,
Bosc.

N° 44. PHILOSCIE DES MOUSSES, *Philoscia muscorum*.

Desm., loc. cit. p. 319.
Lamk., t. 5, p. 155, no 5.
Bosc, t. 2, p. 181.

Habite dans les lieux humides, le bord des ruisseaux, les bois, sous les feuilles mortes et pourries. Très-commun.

Genre CLOPORTE, *Oniscus*. Lat., Lamk., Leach,
Bosc, Desm.

N° 45. CLOPORTE ASELLE, *Oniscus asellus*.

Desm., p. 320. pl. 49, f. 5.
Lamk., t. 5, p. 155, n° 1.
Bosc, t. 2, p. 188.

Habite les lieux humides, sous les pierres; ses œufs éclosent dans des lames situées sous l'abdomen; au sortir de ces lames, les petits sont entièrement blancs. Très-commun.

Genre PORCELLION, *Porcellio*. Latr., Leach,
Desm.
Oniscus. Lamk., Bosc.

N° 46. PORCELLION RUDE, *Porcellio scaber*.

Desm., loc. cit., p. 321.
Oniscus granulatus. Lamk., t. 5, p. 154, no 2.
——— Bosc, t. 2, p. 183

Habite sur les murailles, sous les pierres, le bois pourri. La femelle porte ses petits comme l'espèce précédente. Très-commun.

N° 47. Porcellion lisse, *Porcellio lævis.*

Desm., loc. cit. p. 321.
Oniscus lævis. Lamk., t. 5, p. 154, no 3.
——— Bosc, t. 2, p. 188.

Habite avec l'espèce qui précède. Aussi très-commun.

Genre Armadille, *Armadillo*, Latr., Lamk., Leach, Desm., Bosc.

N° 48 Armadille vulgaire, *Armadillo vulgaris.*

Desm., loc. cit., p. 323.
Lamk., t. 5, p. 152, no 1.
Bosc, t. 2, p. 190.

Habite les champs, les jardins, sous les pierres. Ses petits ont le corps grisâtre et les antennes annelées de gris et de blanc.

N° 49. Armadille pustulé, *Armadillo pustulatus.*

Desm., loc. cit., p. 323, pl. 49, f. 6.
A. Variegatus. Lamk., t. 5, p. 152. n 2.
Bosc, . 2., p. 191.

Habite les champs, les caves, les vieux murs Très-commun.

Genre Bopyre, *Bopyrus*. Latr., Desm.

N° 50. Bopyre des Crevettes, *Bopyrus squillarum*.

Desm., loc. cit., p. 325, pl. 49, f. 8—13.

Ce crustacé parasite se fixe sous un des côtés du têt du Palémon porte-scie; il y produit une assez forte protubérance de couleur verdâtre.

SOUS-CLASSE SECONDE.

ENTOMOSTRACÉS, *Entomostraca*. Desm.

ORDRE HUITIÈME.

LOPHYROPES, *Lophyropa*.

Genre Cyclope, *Cyclops*. Latr., Lamk., Leach, Desm., Bosc.

N° 51. Cyclope commun, *Cyclops vulgaris*.

Desm., loc. cit., p. 362, pl. 53, f. 1—4.
C. Quadricornis. Lamk., t. 5, pl. 129, n° 1.
———— Bosc, t. 2, p. 258.

Habite nos eaux stagnantes. Commun. Ses œufs sont de couleur verte, et forment deux petites masses ovales, situées de chaque côté de la queue.

N° 52. Cyclope nain, *Cyclops minutus*.

Lamk., t. 5, p. 129, no 2.
Bosc, t. 2, p. 257.

Habite les eaux des fontaines. Très-commun. Ses œufs sont gris et disposés comme ceux de l'espèce qui précède.

Genre **Daphnie**, *Daphnia*. Latr., Lamk., Leach, Desm., Bosc.

N° 53. **Daphnie puce**, *Daphnia pulex*.

Desm., loc. cit., p. 372, pl. 54, f. 3—4.
Lamk., t. 5, p. 126, n° 1.
D. Pennata. Bosc, t. 2, p. 280.

Habite dans les fossés des fortifications.

ORDRE NEUVIÈME.

OSTRAPODES, *Ostrapoda*. Straus, Desm.

Genre **Cypris**, *Cypris*. Latr., Lamk., Leach, Bosc, Desm.

N° 54. **Cypris ovale**, *Cypris ovata*.

Desm., loc. cit., p. 383.
Lamk., t. 5, p. 124, n° 3.
Bosc, t. 2, p. 296.

Habite dans les fossés de Capécure. Très-commun.

N° 55. **Cypris blanche lisse**, *Cypris Conchacea*.

Desm., loc. cit., p. 383.
Bosc, t. 2, p. 295.

Habite tous nos fossés. Très-commun.

N° 56. **Cypris brune**, *Cypris fusca*.

Desm., loc. cit., p. 384.

Habite les fossés de Capécure.

N° 57. **Cypris enfumée**, *Cypris fuscata*.

Desm., loc. cit., p. 385.

Habite les marais de Condette.

MALACOLOGIE.

OBSERVATIONS

SUR LE GENRE ANCYLE,

Par M. Bouchard-Chantereaux,

Membre de la Société d'Agriculture, du Commerce et des Arts, de Boulogne-sur-mer.

Les Ancyles sont des petits mollusques fluviatiles que Linnée avait confondu parmi les *Patelles ;* ils en furent retirés par Geoffroy, qui leur donna le nom qu'ils portent maintenant, et dont Draparnaud a formé un genre qui comprend les deux seules espèces qui vivent dans les eaux douces de la France, (la troisième, l'*A. Spina rosœ* n'étant autre chose qu'une valve d'une espèce de *Cypris*) ; elles préfèrent les eaux courantes. L'animal des Ancyles n'ayant pas été parfaitement connu des auteurs systématiques, ce genre n'a cessé d'être balotté d'une famille dans une autre : Cuvier en conserva les espèces dans ses *Patelles*; Lamarck les plaça dans ses *Calyptraciens;* M. de Blainville, dans ses *Otidés;* M. Sander-Rang, dans ses *Semi-Phyllidiens;* M. de Férussac, dans ses *Limnéens,* et M. Latreille, dans ses *Limnocochlides.* Comme ces deux derniers savans l'ont fort bien jugé, ce genre ne doit pas être séparé de *Pulmonés aquatiques*, ce que prouveront sans doute les observations suivantes.

Il y a environ quatre mois que notre estimable et savant collègue M. Gaillon, eut la complaisance de me communiquer les actes de la Société Linéenne de Bordeaux. Depuis cette époque, je conserve, par le procédé de M.

Charles Des Moulins, son président (1), une partie des mollusques fluviatiles de notre pays; plusieurs d'entr'eux se sont propagés, et de ce nombre est l'*Ancylus fluviatilis.* Les observations que j'ai faites sur ce mollusque prouveront aussi (au moins je le pense) la dextrorsité de sa coquille, quoiqu'il ait les organes de la génération et l'anus au côté gauche. Mais comme le démontre très-bien M. Ch. Des Moulins, dans son excellent mémoire sur le genre *Planorbe*, ce n'est point une raison pour considérer sa coquille comme sénestre, ou pour s'étonner de ce qu'elle est dextre, tandis que ses orifices ne le sont pas.

Le 21 mai dernier, ayant mis une vingtaine d'Ancyles dans un bocal, je les trouvai, deux heures après, tous en mouvement; le lendemain, une partie était accouplée deux à deux. Les ayant toujours observés ainsi, je voulus m'assurer s'ils étaient ou n'étaient pas hermaphrodites : n'étant pas capable de vérifier ce fait par la dissection, j'eus recours au moyen suivant qui me tira presqu'aussitôt de l'incertitude; profitant de l'accouplement, j'en pris plusieurs remplissant les fonctions de mâle et je les mis séparément dans des flacons, sur les parois desquels j'observai le surlendemain des œufs.

L'Ancyle qui doit remplir la fonction masculine, rampe et se place sur le côté gauche de l'autre individu; là, il développe sa verge, et, la passant sous le bord gauche de la coquille de ce dernier, qui la soulève un peu, il l'introduit dans son oviducte. Ils restent ainsi accouplés environ deux heures.

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(1) Ce procédé consiste à mettre dans les bocaux contenant les animaux que l'on veut observer, une pincée de l'une des plantes suivantes : *Riccia fluitans*, *Lemna minor*, *Lemna polyrhisa*, ouquelques rameaux de la *Fontinalis antipyretica.* Jusqu'à ce jour, je n'ai employé que cette dernière plante; elle s'est considérablement développée, elle a servi de nourriture aux Mollusques, qui en ont mangé de préférence les nouvelles feuilles, et elle a rendu l'eau d'une limpidité admirable.

Le 23, ils furent constamment en mouvement, et continuèrent à s'accoupler.

Le 24, à six heures du matin, je remarquai plusieurs œufs qui avaient été pondus dans la nuit, sur la paroi du bocal opposée au jour : ce qu'ils ont continué de faire jusqu'à la fin de la ponte.

Désirant connaître le nombre d'œufs que pouvait pondre un Ancyle, j'en pris six aussitôt après l'accouplement et je les isolai aussi dans des flacons; j'obtins dans chacun des trois premiers flacons, sept œufs; dans deux autres, huit; et enfin, dans le dernier, dix. Il résulte donc que chaque individu peut pondre de sept à dix œufs, sans que pour cela il soit fécondé plus d'une fois. L'intervalle entre la ponte de chaque œuf est de trois et quatre jours: ces œufs contiennent depuis un jusqu'à six fœtus; rarement ils dépassent ce nombre, puisque sur plus de cent soixante que j'ai observé, deux seulement le dépassaient; un en contenait sept et l'autre huit.

Immédiatement après la ponte ces œufs sont orbiculaires, d'environ trois millimètres de diamètre; ils contiennent une matière albumineuse incolore, qui entoure une albumine très-fluide et ambrée, aussi de forme orbiculaire; son diamètre est de deux millimètres : elle est divisée en autant de triangles qu'il y a de fœtus (f. 1.) Chaque triangle contient un jaune globuleux d'environ $\frac{1}{10^e}$ de millimètre, sur lequel on voit bientôt le fœtus se développer.

Pendant les six premiers jours après la ponte, l'œuf n'éprouve pas de grands changemens; le fœtus qui a grossi est constamment en mouvement; il se contracte, se dilate, et enfin tourne de gauche à droite.

Le septième jour, la matière qui donnait une teinte jaunâtre à l'albumine, s'en sépare et forme un globule d'un jaune de succin très-vif qui couvre le fœtus; ce globule est destiné à former la coquille.

Le huitième jour, l'albumine devient laiteuse.

Le neuvième jour, le globule jaune commence à avoir un petit point plus foncé, situé au tiers postérieur du côté droit; l'albumine devient plus dense, et se retire vers le centre. (f. 2.)

Le dixième jour, l'albumine s'est encore contractée et épaissie (f. 3.)

Le onzième jour, on distingue parfaitement l'animal, ses yeux et ses tentacules. La coquille qui a à peu-près la forme d'une petite Natice sortant de l'œuf, ne recouvre que la partie postérieure de son corps (f. 4.)

Le douzième jour, la tête et le cou seulement ne sont point couverts par la coquille; le sommet de celle-ci est moins marginal, mais est encore situé au côté droit (f. 5.)

Le treizième jour, la coquille est rayonnée; ses rayons prennent naissance à son sommet et s'étendent en s'élargissant vers ses bords; elle couvre l'animal à l'exception de la tête; on distingue les mouvemens de la bouche.

Le quatorzième jour, la coquille a la forme qu'elle doit conserver; elle couvre entièrement l'animal; sa spire est disparue, son sommet est obtus et postérieur. (f. 6.)

Le quinzième jour, la matière albumineuse servant de nourriture fœtale étant absorbée, l'œuf se déchire et les jeunes Ancyles rampent sur les parois du bocal; ils ont à cette époque un millimètre de long sur $\frac{9}{100}$ de large.

Genre **Ancyle**, *Ancylus.* Geoffroy, Müller, Draparnaud, de Férussac, de Blainville, Millet, Brard, Des Moulins, de Roissy, Desmarets, Latreille, Sander-Rang, Grateloup, Collard des Cheres, Michaud.

Patella. Linnée, Bruguières, Gmelin, Poiret, Donovan, Montagu, Dillwyn, Maton et Rackett, Turton.

Helcion. Denis de Montfort.

Animal ovale, cônique, légèrement courbé en arrière, ayant le manteau très-mince, ne dépassant pas la tête, bordé de cils microscopiques; tête très-grosse portant deux tentacules gros, cylindriques ou triangulaires, plus ou moins tronqués, contractés, garnis au côté externe d'un appendice foliacé; yeux aussi très-gros, situés à la base interne des tentacules, un peu en arrière; bouche inférieure, longitudinale, très-grande, prolongée de chaque côté d'appendices labiaux; pied elliptique arrondi, assez grand; organes de la respiration en forme de tube, courte contractile, sortant vers l'extrémité postérieure du corps et du côté opposé à la flexion du sommet; organes de la génération au côté droit ou gauche; verge très-forte, blanchâtre, diaphane, triangulaire, aplatie, située au-dessous du tentacule gauche; organe femelle placé au tiers postérieur; anus aussi au côté gauche.

C'est à tort que plusieurs naturalistes assurent que ce mollusque change rarement de place ; il est au contraire continuellement en mouvement, surtout dans la saison de l'accouplement.

Coquille très-mince, recouvrante, en cône oblique, très-finement striée ; ouverture ovale, ou ovale oblongue ; sommet pointu, non marginal, courbé en arrière, un peu à droite ou à gauche.

1. ANCYLE FLUVIATILE, *Ancylus fluviatilis.*

Müller, Verm., p. 201, n° 386
Draparnaud, Hist. Moll., p. 48, pl. 2, f. 23—24.
Lamarck, Anim. s. Vert. t. 62, p. 27, n° 2.
Millet, Moll. du dép. de Maine-et-Loire, p. 21, n° 2.
Brard, Coq. des env. de Paris, p. 210, n° 1, pl. 7, fig. 3.
Des Moulins, Cat. des Moll. du départ. de la Gironde, p. 63, n° 1.
Grateloup, Tab. des Moll. de l'arrond. de Dax, p. 167, n° 1.
Collard des Cherres, Cat. des Moll. des environs de Brest et Quimper, p. 94, n° 2.
De Roissy, Buff. Sonn. t. 5, p. 226.
De Férussac, Dict. cl. d'hist. nat. t. 1, p. 346.

Patella fluviatilis. Linn. Gmel., p. 3711, n° 98.
Gualt, Test. t. 4. fig. AA et BB.
Montagu, Test. Brit., p. 482.

Patella lacustris. Da Costa, Brit. Conch., p. 1, t. 2, fig. 8.
Lister Anim. Angl., t. 2, fig. 32.
——Conch., t. 141, fig. 39.
D'Argenv. Conch., t. 27, fig. 1.
Pennant, Brit. Zool, 4, no 149.
Pulteney in Hutch. Dorset, p. 51, t. 22. fig. 8.
Donovan, Brit. Shells, t. 147.
Maton et Rackett, Linn. Soc., t 8. p. 232, n° 7.
Turton, Conch. Dict., p. 138, no 8.

Animal grisâtre, transparent, plus pâle en dessous.

Coquille cônique, couleur de corne, toujours couverte d'un épiderme brun foncé. Sous cet épiderme elle est finement striée; ces stries prennent naissance au sommet, et s'étendent en s'élargissant vers les bords; ouverture ovale; sommet pointu, postérieur, recourbé en arrière un peu à droite. Longueur des plus grands individus, 4 lignes; largeur, 3 lignes.

Habite la rivière de Wimille, sous le Pont-Feuillet et le ruisseau du Moulin-Hubert, sous les pierres. Très-com.

2. Ancyle des lacs, *Ancylus lacustris*.

Müller Verm., pl. 199, n° 385.
Drap., Moll., p. 47, no 1, pl. 2, fig. 25—27.
Lamk., Anim. s. Vert., t. 6. (2), p. 27, n 1.
Millet, Moll., p. 20, no 1
Grateloup, Moll., p. 168, n 2.
Collard des Cherres, Moll., p. 93, no 1.
De Roissy, Buff. sonn., t. 5, p. 226.

De Férussac, Dict. clas. d'Hist. nat., t. 1, p. 347.

L'Ancyle. Geoffroy, p. 124, nº 1.

Patella lacustris. Linnée, syst. 769.

Gmelin, p. 3710, nº 97.

Montagu, test. Brit., p. 484.

D'Argenv., Conch., pl. 27, fig. 1, et Zoom., pl. 8. fig. 1.

Patella oblonga. Donovan, Brit. shells, t. 150.

Pulteney in Hutch. Dorset, p. 51, t. 18, fig. 20, et t. 22, fig. 2.

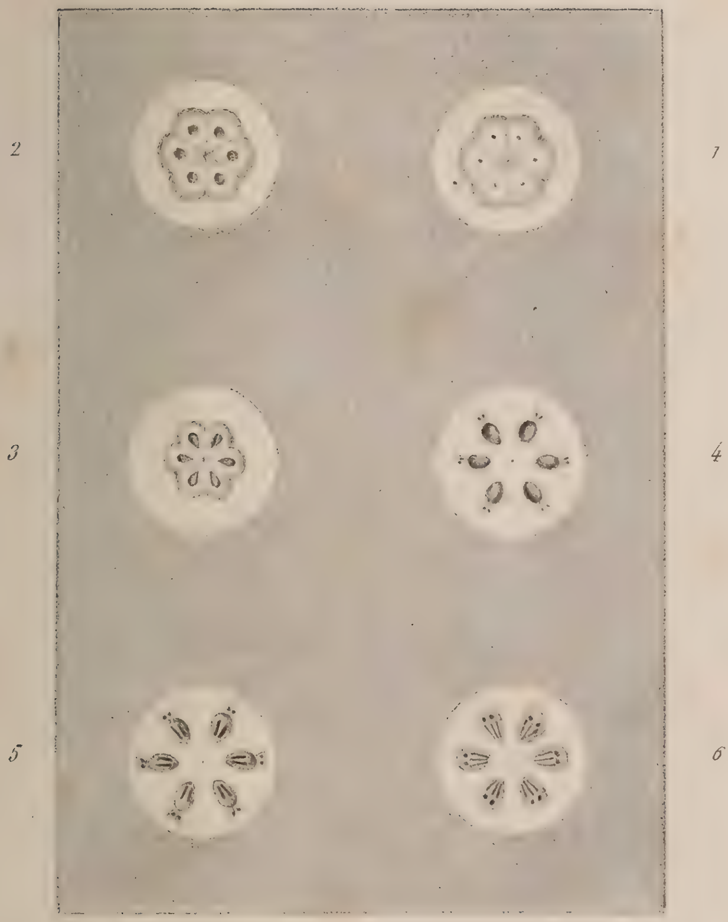
Maton et Rackett, Linn. Soc., t. 8, p. 33, nº 8.

Turton, Conch. Dict., p. 138, nº 8.

Animal transparent, grisâtre, mais moins foncé que le précédent; tentacules tronqués.

Coquille ovale alongée, couleur de succin, mince, transparente; sommet acuminé, subcentral, recourbé en arrière un peu à gauche; bord de l'ouverture tranchant. Longueur, deux lignes et demie; largeur, une ligne et un quart.

Habite les marais de Condette, sur les tiges des plantes aquatiques. Commun.



L. de Benard

Oeufs de l'Ancyle Fluviatile.

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